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PAPER TRADE JOURNAL

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VOL. 123, NO. 4 JULY 25, 1946

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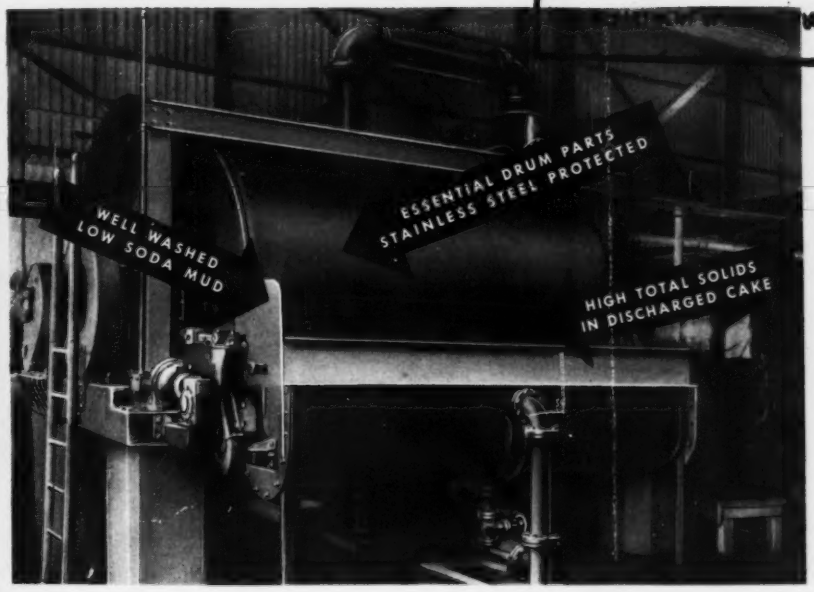
LIME MUD FILTERS



Swenson Lime Mud Filter in a Southern Pulp Mill.

THE SUCCESSFUL performance of Swenson Lime Mud Filters has permitted pulp mills to reduce operating costs by its ability to provide a well washed mud, low in soda content, with high total solids in the discharged cake. This has resulted in better kiln operation and lower kiln fuel consumption.

This filter has been specifically designed for lime mud operation, and is almost completely automatic—requiring very little attention. Its sturdy stainless steel protected construction combined with low speeds results in low maintenance cost. All parts are readily accessible for inspection or repair. Fully described in Bulletin F-100—write for a copy.

PULP WASHERS • BLACK LIQUOR EVAPORATORS • LIME SLUDGE FILTERS • BLOW CONDENSERS

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Descriptive Bulletin F-100

SWENSON
SWENSON EVAPORATOR COMPANY
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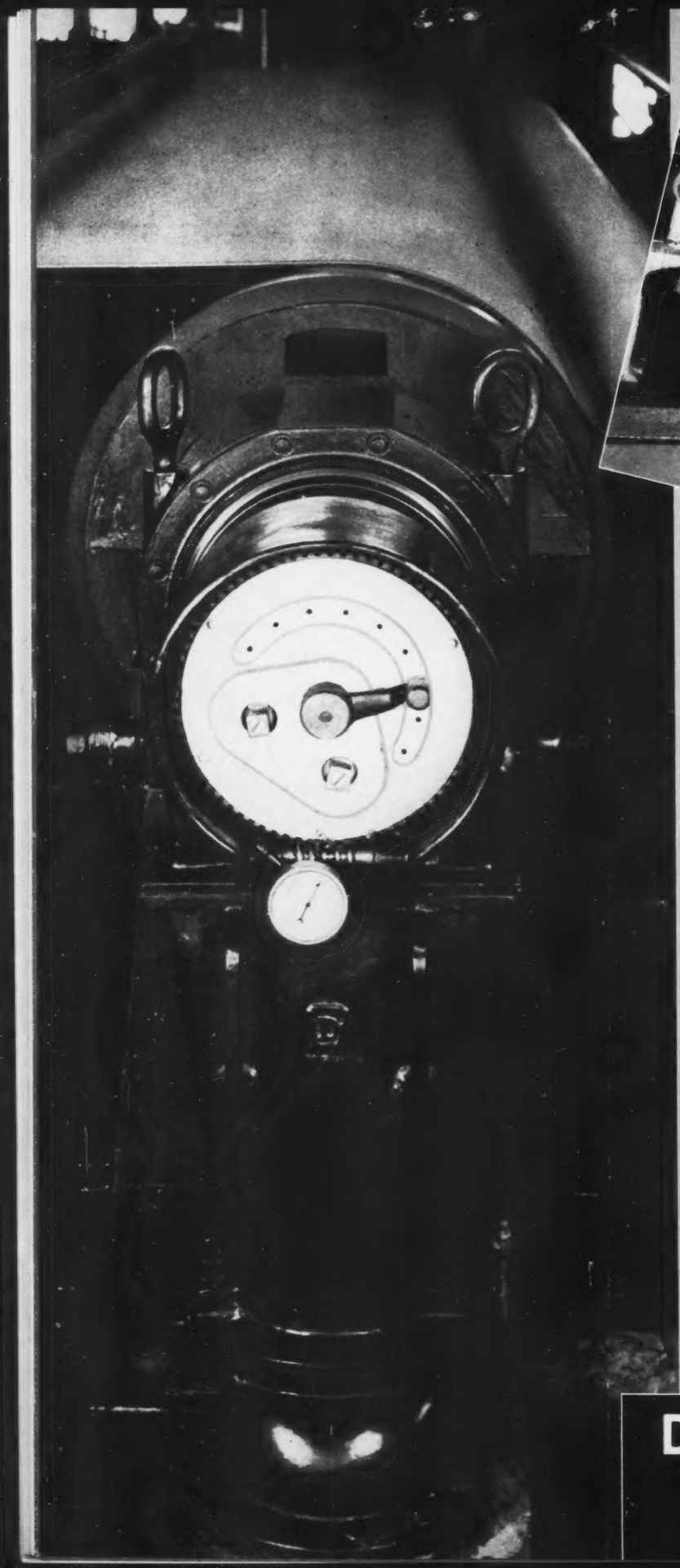
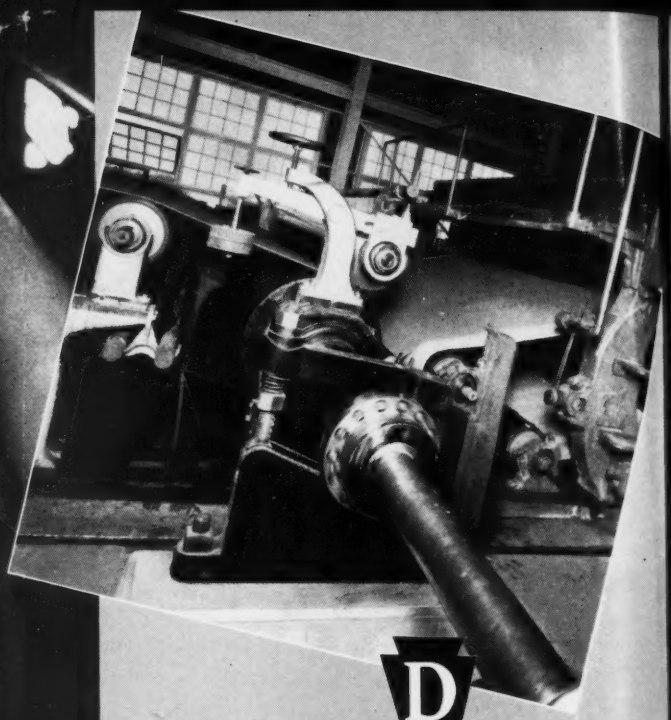
Export Dept.: 30 Church St., New York 7, N. Y.

Dominion Mills Speculate on Further Price Rise
Hudson Valley Area Mills Seeking More Help
Powell River Again Produces Sulphite
B-S-W Builds Alberni Canal Camp

Marathon Executives Receive New Responsibilities
Mead Corporation Profits More Than Doubled
Brown Profits Rise in 28-Week Period
Plan Pulp Mill at Blind River





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Downingtown Cantilever Suction Couch Rolls are available with either front end or rear end suction. Connections for front end suction may be either inside or outside the machine. These are all standard with us, not specials. Removable aluminum sections are provided on the front end of all types to facilitate wire changing and, of course, all are direct driven, which is a feature introduced by us over 20 years ago. Send for Catalog No. 120.

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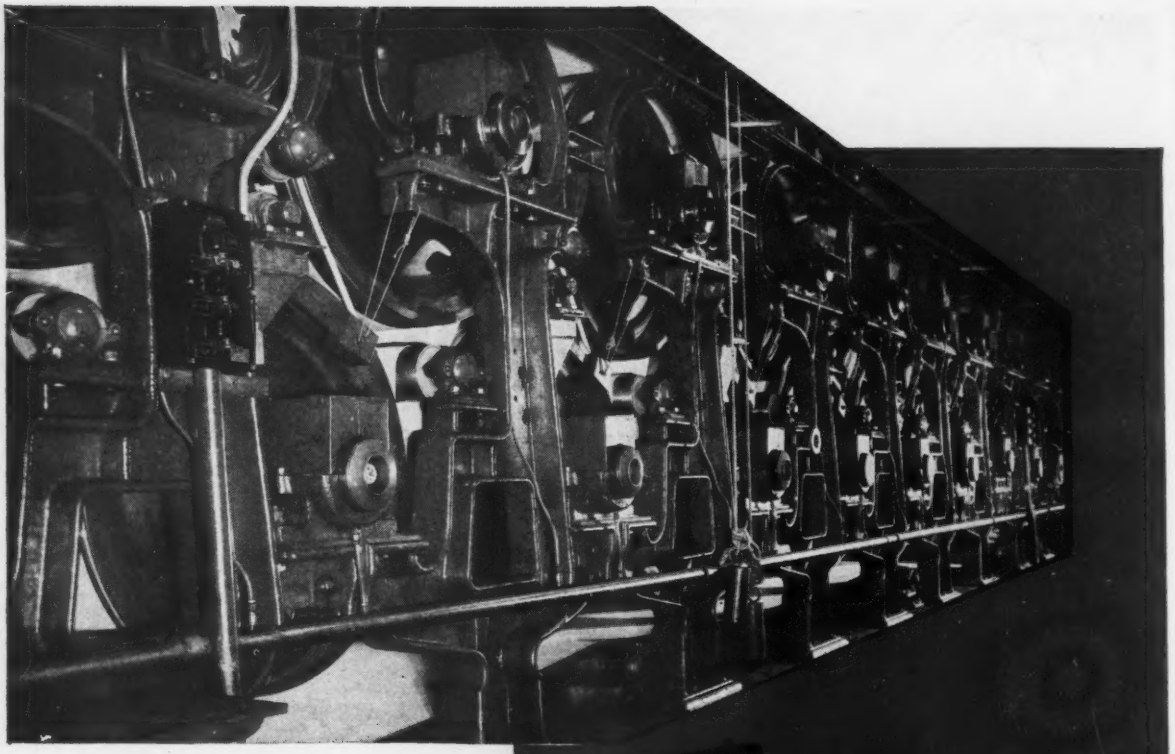

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FOR THE PAPER INDUSTRY

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PAPER TRADE JOURNAL

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Established 1872

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CONTENTS

JULY 25, 1946

Dominion Mills Speculate on Future of Newsprint Prices	9
Hudson Valley Area Seeking More Help	9
Southerners Gather to Promote Safety	10
Marathon Heads Get New Responsibilities	10
Rand Declares Norwood Is Not Liquidating	14
B-S-W Builds Camp on Alberni Canal	21
B. C. Pulp & Paper Again in Production	21
Plan Pulp Mill at Blind River	21
Trust Suit Aimed at Stencil Paper	22
Strathmore No. 1 Mill Celebrates Safety	47
New Sales Group to Import Finnish Newsprint	48
Fire Wipes out Keuka Mill	49
Obituary	52

Financial News	14	Production Report	33
Market Review	50	Miscellaneous Markets	53
Imports	48	Market Quotations	53
Editorial	32	Classified Advertising	58

Technical Section *("TAPPI")*

Non-Fibrous Raw Materials Report—1945	35
Experimental Sulphite Pulping of Eastern White Pine	41

PAPER TRADE JOURNAL IS INDEXED IN INDUSTRIAL ARTS INDEX

INDEX TO ADVERTISERS ON PAGE 72

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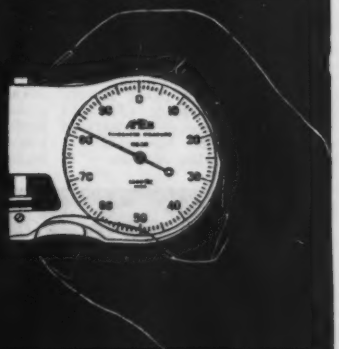
The neatest, lowest priced, most accurate and durable dial pocket gauge made. Its case is only ¼" thick, dial diameter 1⅝", yet measurements up to 5/16" can be made by thousandths with great accuracy. Priced at $12.



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To get *more* for your valve dollar *consult* POWELL *Engineering*

No one would expect a burro to pull a load that requires a heavyweight draft horse. But a sure-footed burro is just right for carrying a pack on a mountain trail where the power of a draft horse would be wasted.

And yet when it comes to valves, such "misapplication" is often encountered. *Many cases of failure are directly due to expecting service from a valve which it was not designed to give.* Consequent replacements are costly. On the other hand, it is not sound economy to use a valve of more expensive construction than the particular service requires. The Powell Line* of Bronze, Iron, Cast Steel and Corrosion Resistant Valves, is so *complete* that there's a POWELL Valve that's *just right* for every flow control condition encountered in modern industry. When you need valves for new installations or for replacements, don't risk "misapplication". Consult POWELL Engineering and *get more for your valve dollar.*

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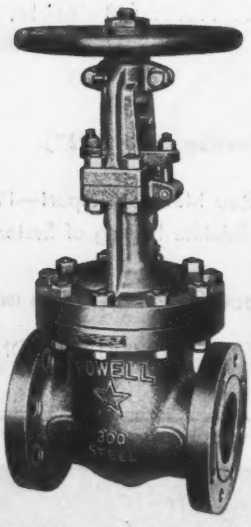
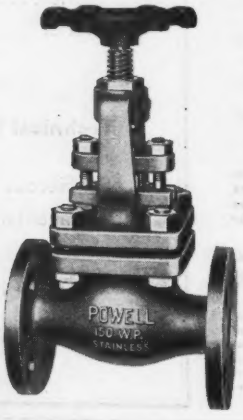
Large Iron Body Bronze Mounted Gate Valve for 125 pounds W. S. P. Made in sizes 2" to 30", incl. Has flanged ends, outside screw rising stem, bolted flanged yoke and taper wedge solid disc. Taper wedge double discs can be provided in sizes 2" to 12", incl. Seat rings and stem are bronze. Disc is bronze in 3½" and smaller size valves and bronze faced in the larger sizes. Also available in All Iron for certain services.

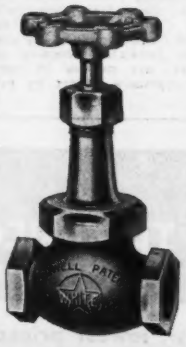


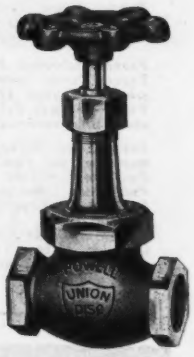
Class 300-pound Cast Steel Gate Valve. Has flanged ends, outside screw rising stem, bolted flanged yoke and taper wedge solid disc. Powell Cast Steel Valves of all types are available in pressure classes from 150 to 2500 pounds, inclusive.



Small Bronze Globe Valve for 200 pounds W.S.P. Made in sizes ¼" to 3", incl. Has screwed ends, union bonnet, renewable, specially heat-treated stainless steel seat and regrindable, renewable, wear - resisting "Powellium" nickel-bronze disc. A long-life valve, designed to stand up under severe service conditions.

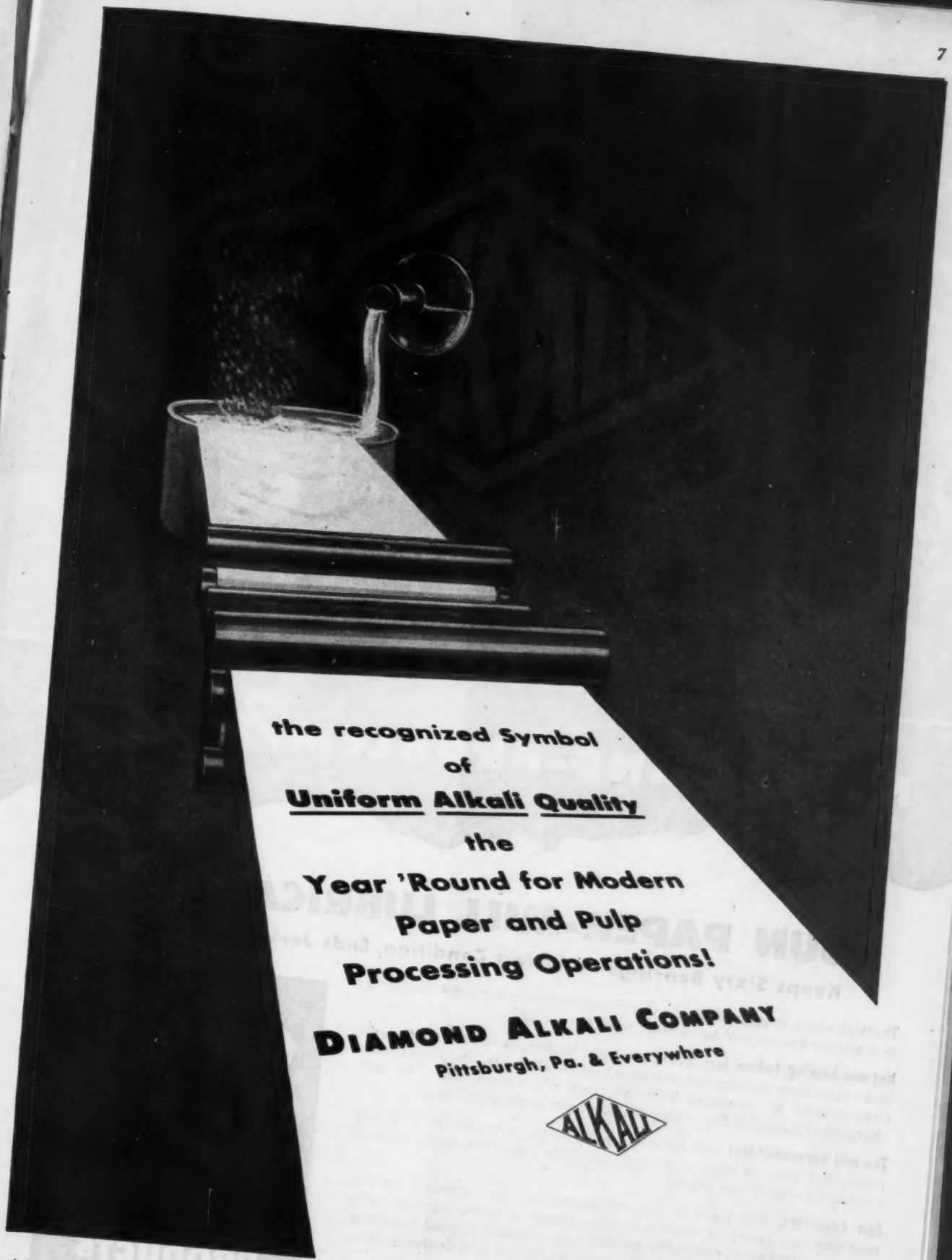
Stainless Steel Gate Valve for 150 pounds W. P. Has flanged ends, outside screw rising stem, bolted flanged yoke - bonnet and taper wedge solid disc. This is one of many special Powell designs for handling corrosive media. Available in a wide range of corrosion resistant materials.





Small Bronze Globe Valve for 150 pounds W. S. P. Made in sizes ½" to 3", incl. Has screwed ends and union bonnet. Regularly furnished with renewable vulcanized composition disc for steam service, but special discs are available for other services.

POWELL VALVES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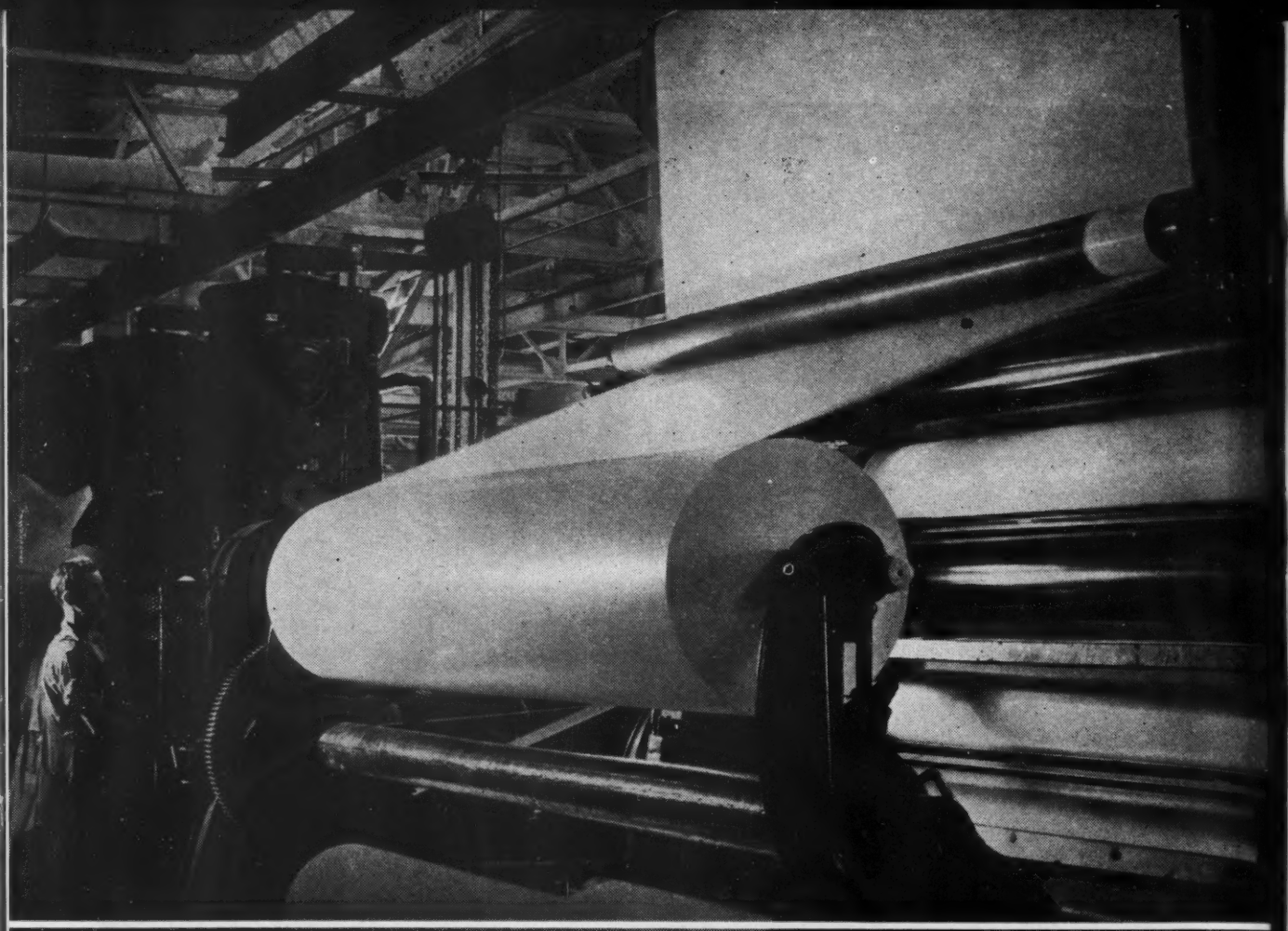

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SUN PAPER-MILL LUBRICANT...

Keeps Sixty Bearings in Perfect Condition, Ends Jerky Operation

Through eight, long, hard years, the 60 bearings of a big paper-machine in a widely known mill have been running smoothly.

Not one bearing-failure has interrupted production. Former troubles with jerky operation, carbon-accumulations in the bearings, and dirty conditions around the machine have all been eliminated, since the mill changed to a special Sun paper-mill lubricant eight years ago.

The mill superintendent says he would not use any other lubricant at any price, and present indications are that there's another eight years of trouble-free operation ahead.

Sun Engineers, like the one who recommended the lubricant for this machine, are ready to serve you. They combine broad experience in petroleum-technology with the specific requirements of your machines. To make things go smoothly, to increase production and decrease costs, call the Sun office near you. Or write . . .

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INDUSTRIAL PRODUCTS

PAPER TRADE JOURNAL

Vol. 123, No. 4 July 25, 1946

Title Reg. U. S. Pat. Off.

Hudson Valley Area Seeking More Help

COHOES, N. Y.—The large paper mills combed this section for help during the past week, among them Palmer branch of the International Paper Company, Castleton plant of the Fort Orange Paper Company and the local mill of John Leggett & Sons. Many of the mills are running with day and night shifts and the changing over to civilian production has not meant any great decrease in working forces.

Labor conditions are satisfactory and during the week a new wage agreement was negotiated by organizers with the Albany Felt Co. The new contract allows a general increase of eleven cents per hour, with departmental wage adjustments of from five to eighteen cents, paid holidays and time and one-half for Saturdays. The minimum hourly wage is 67 cents with shift differentials of nine to twelve cents. About 750 workers are affected by the agreement.

During the week labor leaders averted a threatened strike at the Gouverneur mills of the Rushmore Paper Mills, Inc., where several hundred hands are employed. Members of the International Brotherhood of Papermakers and the International Brotherhood of Sulphite and Paper Mill Workers had sought an increase of fifteen cents an hour, time and one-half for Sundays and three holidays a year. Following negotiations the organizations voted to accept an increase of ten cents per hour retroactive to June 1, a three and one-half cent increase effective Nov. 1, 1946, and time and a half for Sundays. The new contract expires June 1, 1947.

Holyoke Fine Paper Group Expects Advance in Prices

HOLYOKE, MASS.—An early rise in the price of fine papers is expected, according to paper men here. Local fine paper mills say they are waiting for final determination of the resumption of OPA. They had an application for a price increase being processed during the last week in June and no decision was handed down by the time OPA was scrapped July 1.

It is understood that OPA was to give them price relief, and local paper manufacturers expect similar treatment if OPA is resumed.

Dominion Mills Speculate on Future of Newsprint Prices

TORONTO, Ont.—The great question in Dominion paper circles just now is whether or not newsprint companies will advance the price of their product beyond the $6.80 per ton announced last week by most Canadian firms to compensate for the loss of the ten percent premium on United States funds. Three more firms raised their price last week for pulp. Bathurst Power and Paper Co., Ltd., announced a ten percent increase on unbleached sulphite pulp; Abitibi Power and Paper Co. and Great Lakes Paper Co., Ltd., also upped the price of pulp by a like amount.

No one is prepared to say that these prices are final. Some think that the demand and supply situation on newsprint at present, plus the fact that costs since 1942 for an average mill have risen more than the price and that another boost of from $4 to $8 is justified. Should a price increase of this amount be announced, these sources say, the newsprint cost-price equation would be brought into line with what it was in 1942 when newsprint was selling at $50 a ton, U. S. funds.

Though the recent price increase does not close the door to additional increases, some observers feel that there will be no further advance at this time. They argue that the $6.80 price boost recently made will represent, in most Canadian mills, a basic increase in the price of newsprint for the balance of the year since a large proportion of the mills are understood to have protected their U. S. dollar position by forward selling of dollar exchange at a ten percent premium to the Federal Exchange Control Board. Normally, FECB practice allows forward coverage for 90 days, but on special authority, as in the case of newsprint companies, a six months' forward position was permitted.

The immediate reaction of investors to the $6.80 per ton increase in the price of newsprint recently was that Canadian newsprint mills have shown considerable restraint by not boosting newsprint prices to a higher level, with the result that they would thereby build up publisher goodwill.

The new prices for pulp to United States will be: Bleached sulphite, $103.40; unbleached sulphite, $90.20; bleached sulphate, $103.40; unbleached sulphate, $8.60. Groundwood pulp will be $63.80 per ton.

Coal Movement Heavy Through Fox River Locks

APPLETON, Wis. — The number of lockages and net coal tonnage through Fox river locks from Green Bay to Menasha, Wis., showed a sharp increase in June this year as compared with the same month of last year, according to Uno G. Ohman, area engineer at the United States engineer's office. The coal goes to paper mills and other industries in the valley.

Coal tonnage through Appleton locks varied from 17,000 to 18,000 tons last month, as compared with 6,000 to 7,000 a year ago.

Earmarked in the rivers and harbor bills is $170,000 for operation and care of works on the Fox river.

Powell River Again Producing Sulphite

POWELL RIVER, B. C.—Production of high grade sulphite pulp recommenced at the plant of the Powell River Company early this month. This pulp is used as raw material for packaging products, paper boards and building papers. This department was closed down from May 15 until July in order to conserve available logs for newsprint manufacture while the logging strike was in progress in British Columbia.

Wall Paper Sells Its Mill at Hudson Falls

HUDSON FALLS, N. Y.—The former mills of the United Wall Paper Factories, Inc., have been sold to the Hudson Aleen Realty Corp. The company has opened a new plant near Chicago and operations were suspended here when it was established last spring. A section of the property has been occupied under lease by the Schuylerville Wall Paper Co.

Monadnock-Contoocook Moves

BOSTON, Mass.—Offices of the Monadnock Paper Mills and the Contoocook Valley Paper Company have been removed from 1054 Park Square Building to larger quarters in Rooms 1057-1058 in the same building.

Southerners Gather To Promote Safety

ASHEVILLE, N. C. — The Southern Pulp and Paper Safety Association, an organization comprising approximately thirty paper mills in nine Southern states, met at the Ecusta Paper Corporation in Pisgah Forest July 22 and again at the Champion Paper and Fibre Company in Canton July 23.

Approximately 60 personnel and safety directors were expected to attend the two conferences. The tentative schedule called for a trip through each plant to be followed by a luncheon and a panel discussion on mutual safety problems.

The Southern Pulp and Paper Safety Association was organized two years ago to promote accident prevention work in the pulp and paper industries of the South. Two previous meetings of the association were held at Tuscaloosa, Ala., and Jacksonville, Fla., in 1945.

Install New Chipper to Convert Waste to Pulp

VANCOUVER, B. C.—Installation of a Carthage chipper and screen is now proceeding at the plant of the Canadian White Pine Company. Vancouver Engineering Works Ltd. has secured the contract for the assembly of a screening unit at the plywood plant of the H. R. MacMillan company at Vancouver. This plywood plant, operated by MacMillan Industries Ltd., and the Canadian White Pine Company is proposing to convert all their fir and hemlock waste into material for pulp and paper mills. Formerly, waste was sold as slabs, sawdust or other fuel.

New Printing Service Offered On Flexible-Corrugated

NEWTON UPPER FALLS, Mass.—New equipment for printing flexible-corrugated has been installed by Sherman Paper Products Corporation. George H. Stucke, sales manager, reports that practically any overall design as well as trade marks and slogans can now be printed in any one color. In addition to its advantages as a low cost advertising medium, the addition of printing on Corroflex is expected to be highly popular with nationally known organizations as a protection against substitute products.

Room Shortage Looms In Kimberly

KIMBERLY, Wis.—Because the Kimberly mill of Kimberly-Clark Corporation is hiring additional help to provide for a return to shorter hours, an appeal has been made to the villagers to report any available rooms to the watchmen at the mill or to the personnel department.

Huyck Film About Paper Draws SAPEYE Crowd

CHICAGO—The motion picture film "Paper-Pacemaker of Progress" played to a full house on Monday noon, July 15, before members and guests of the western division of the Salesmens Association of the Paper Industry. It was "standing room only" as those present viewed the film staged and taken by F. C. Huyck & Sons, felt suppliers of the paper trade. The film gave a bit of well coordinated history of the paper industry, went pleasingly into some excellent illustrations of how paper is used in every-day life and of how necessary it is to progress, talked a bit about the products of its sponsors and wound up with an impressive portrayal of the importance of paper in the scheme of things. Arranged for by Ben K. Babbitt, social chairman of the SAPEYES, the film provided all entertainment for the July "open house" with the exception of some fitting remarks by vice-president Edwards of the Howard Paper Co.

B. C. Pulp Names Burchett To be Woods Manager

VANCOUVER, B. C.—E. P. Burchett has been appointed woods manager of the B. C. Pulp and Paper Company, which operates pulp and paper plants at Woodfibre and Port Alice, B. C. Prior to the war, Mr. Burchett operated the Rounds, Burchett Logging Company at Ramsay Arm, and prior to that, was superintendent of logging for Merrill, Ring and Wilson at Rock Bay. During the war, he served overseas with the Canadian Forestry Corps.

List Retires from Activity In Samuel Langston Firm

CAMDEN, N. J.—L. J. List, who for over thirty-one years has been associated with the Samuel M. Langston Company, has resigned as president and from active part in the management of this company as of September 1st. He retains his interest in the company and will continue as a member of its Board of Directors. Bryant W. Langston, son of the founder, Samuel M. Langston, has been elected president, and Harry F. Appelstein, formerly comptroller, was elected treasurer.

B. C. Ames Reorganizes

WALTHAM, Mass.—The B. C. Ames Company has been reorganized with Warren Ames as president and H. G. Haynes as treasurer. This 47-year old concern will continue the manufacture and sales of its well-known micrometer dial gauges and micrometer dial indicators. The company has sold its manufacturing rights in Ames bench lathes, milling machines and hardness testers to Ames Precision Machine Works owned by Ira R. Ames, who formerly was affiliated with the B. C. Ames Company.

Marathon Heads Get New Responsibilities

ROTHSCHILD, WIS. — John Stevens, Jr., of Wausau, was elected president of Marathon Paper Mills of Canada, Ltd., last week. D. C. Everest, Wausau, formerly president of the company, assumes the position of chairman of the board of directors of the Canadian company. Marathon Paper Mills of Canada, Ltd. is a subsidiary company of Marathon Corporation, manufacturers of pulp, paper, paperboard and packaging for foods. Everest is president and Stevens is a vice president of the parent company.

Leo E. Croy, of Neenah, formerly vice president in charge of sales, has been elected executive vice president in charge of all Marathon operations in the United States, except the chemical division. Roy J. Sund, Neenah, production manager of Marathon converting plants, was elected vice president in charge of all the company's United States manufacturing, except chemicals.

Donald A. Snyder, Menasha, manager of the company's food packaging division, was appointed director of sales. The company's product development department, headed by Frank L. Broeren, Neenah, was expanded to include sales engineering.

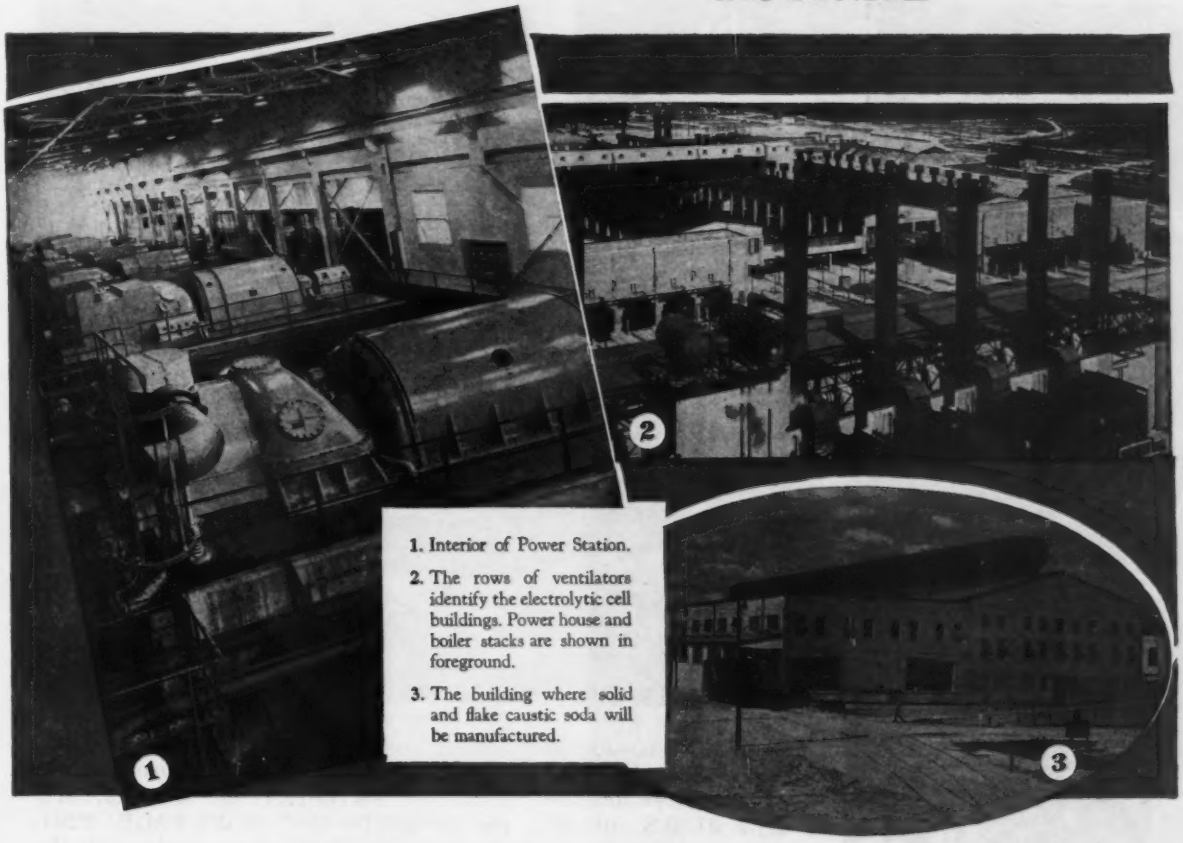
D. C. Everest, president of Marathon Corporation, explained that these executive appointments were part of the company's long-range planning for expanded operations in woodland activity, pulp and paper manufacture and fabrication of packaging for the food industry. The company operates plants in four Wisconsin cities—Rothschild, Wausau, Menasha and Ashland—and in Menominee, Michigan. Through its subsidiary company, extensive pulpwood cutting operations are carried on in Canada. The Canadian woodlands supply wood to Marathon's pulp mill in the United States and will also supply pulpwood to the company's new Canadian bleached sulphate pulp mill of 300 tons daily capacity, now nearing completion there.

Col. Bidwell Returns to Paper Machinery Industry

HOLYOKE, Mass.—At a recent meeting of the Board of Directors of the Holyoke Machine Co., Col. P. W. Bidwell was elected treasurer and general manager, to succeed Herbert L. Frink who is retiring after over thirty years' service with the Company.

Col. Bidwell was at one time general manager of B. F. Perkins and Son, Inc., for many years and is well known in the paper trade in general. Subsequently he was for ten years general superintendent of White and Wyckoff Manufacturing Co., after which he spent five years on active duty in the Ordnance Department, U. S. Army.

Lake Charles Plant will increase *Caustic Soda—Chlorine* Production



1. Interior of Power Station.
2. The rows of ventilators identify the electrolytic cell buildings. Power house and boiler stacks are shown in foreground.
3. The building where solid and flake caustic soda will be manufactured.

Built to make wartime magnesium, "Lake Charles" is being converted to the manufacture of chlorine and caustic soda. While actual production will not start until some time next year, the existence of certain vital facilities permits an earlier start than would be possible by constructing an entirely new plant. "Lake Charles" will be operated by The Southern Alkali Corporation—a Pittsburgh Plate Glass Company affiliate. Located in Louisiana, this plant adds an important link to a cross-the-country group of facilities, all strategically located to serve industry efficiently and economically. This group includes a Texas Plant at Corpus Christi—owned by The Southern Alkali Corporation—and Columbia plants at Barberton, Ohio, Natrium, W. Va., and Owens Lake, Calif.

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY

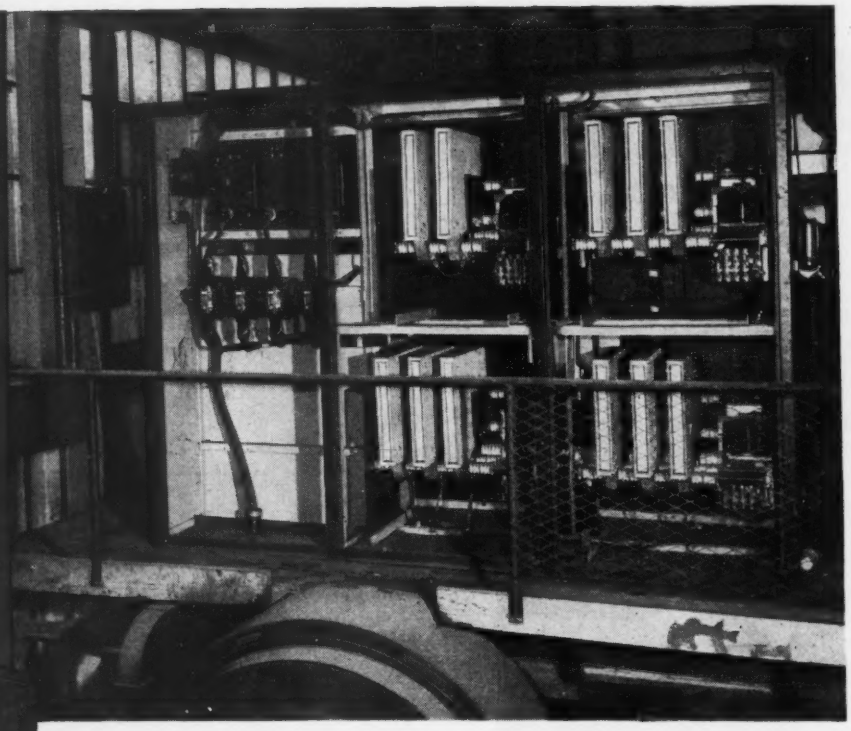
COLUMBIA CHEMICAL DIVISION

FIFTH AVENUE at BELLEFIELD, PITTSBURGH 13, PENNSYLVANIA · Chicago · Boston · St Louis Pittsburgh · New York · Cincinnati · Cleveland · Philadelphia · Minneapolis · Charlotte · San Francisco

COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS
Soda Ash • Caustic Soda • Liquid Chlorine • Sodium Bicarbonate • Pittchlor (*Calcium Hypochlorite*) • Silene EF (*Hydrated Calcium Silicate*) • Calcium Chloride • Soda Briquettes (*Iron Desulphurizer*) • Modified Sodas • Caustic Ash • Phosflake (*Bottle Washer*) • Calcene T (*Precipitated Calcium Carbonate*)

IT'S FAST IT'S TRIM IT'S RELIABLE

G-E High-voltage LIMITAMP CONTROL



This is the back view of a factory-assembled Limitamp unit. It controls the 300/600 hp synchronous motor which drives a Banberry mixer in a rubber mill. This mill represents only one of the many different industries for which Limitamp Control, designed for severe duty, is ideally suited.

This attractive, easy-to-install unit is a single Limitamp controller.

Here is a co-ordinated control that provides *outstanding* protection for high-voltage motors.

EJ-2 FUSES cut off a rise in current, resulting from a short circuit, in less than *one-quarter cycle* and clear it in less than one-half cycle—long before the short has time to harm the contactor or motor. And this operation takes place silently—without startling workmen.

AIRBREAK CONTACTORS designed for severe repetitive service, are co-ordinated with the EJ-2 fuses. These contactors give dependable, low-cost operation with little maintenance. Operating experience has proved that they furnish reliable service with only routine inspection—*even after several million operations.*

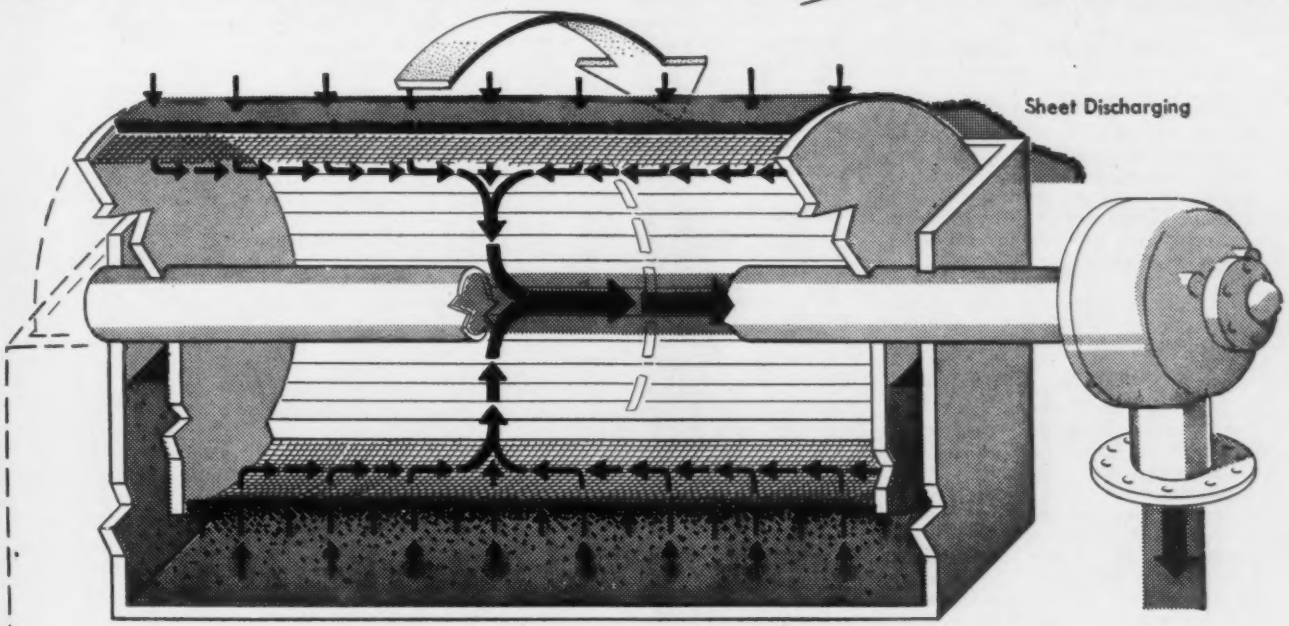
PROVIDING OVERLOAD AND UNDERVOLTAGE PROTECTION, this control guards the motor against overheating due to sustained overloads or single phasing by isothermic overload relays which are accurately calibrated against actual motor characteristics.

YOU'LL WANT complete details about Limitamp controllers—special features, different types of enclosures, ratings, etc. Ask our local office for Bulletin GEA-4247 or write directly to *Apparatus Dept., General Electric Company, Schenectady 5, New York.*

GENERAL ELECTRIC

OLIVER SAVEALL

. . . STOPS FIBER LOSSES MECHANICALLY



This is a point sometimes overlooked and it's a point worth discussing.

Being a mechanical operation—a simple, physical separation of fiber from white water—Oliver Saveall operation requires no skilled technical supervision to make it successful. No delicate chemical adjustments are needed. Actually the Saveall functions as an efficient filter, continuously interposing a sheet of pulp to stop the fibers from flowing away. The fibers are continuously discharged with the pulp to the machine circuit.

Since its introduction to the paper field over 20 years ago, the Oliver Saveall has fulfilled its high expectations. Several hundred already have been installed. Progress in design and construction has been made, of course, notably in methods for discharging the sheet. Today, Oliver offers either rubber covered or durable redwood tank and drum construction plus a selection of three dischargers: Hydrair, Oliver Denhard, and Discharge Roll—the choice being determined by the kind of fiber handled and the sheet formed. With such a selection, the Oliver Saveall is adaptable to any kind of stock. It is described in Folder F-109.

Today's problem of white water control is both economic and sanitary. That's why you need the simplest and most effective unit you can find. Why not have an Oliver United Engineer recommend the type and size of Oliver Vacuum Saveall for your mill?

OLIVER PULP FILTERS

OLIVER Ringvalve Sulphate Washer

OLIVER Ringvalve Sulphite Washer

OLIVER Ringvalve Soda Washer

OLIVER Ringvalve High Density Thickener

OLIVER Ringvalve Bleach Washer

OLIVER Ringvalve Decker

OLIVER Saveall

OLIVER High Density Thickener

OLIVER Pulp Washer

OLIVER Groundwood Decker

OLIVER Groundwood Washer

OLIVER Lime Mud Filter

OLIVER Board Forming Machine

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Canada: Sales & Manufacturing Representative, E. Long Limited, Orillia, Canada

Factories: Oakland, Calif. - Hazleton, Pa. - Orillia, Canada - Melbourne, Australia

Western Sales Division
Oakland 1, California
2900 Glascock Street

Nekoosa-Edwards Files For New Stock Issue

PORT EDWARDS, Wis.—Nekoosa-Edwards Paper Company last week filed a registration statement with the Securities and Exchange Commission in Philadelphia for 63,000 shares of $25 par value common stock. The company will offer its common stockholders the right to subscribe to the stock on the basis of one new share for each four held. Unsubscribed shares will be offered publicly by underwriters headed by Loewi and Company, Milwaukee, Wis. Of net proceeds, the company will spend about $1,000,000 for inventory and the rest for equipment and working funds.

Nepco stockholders held their annual meeting here July 17. John E. Alexander, president and general manager, gave a report on conditions of the company and discussed future operations.

Directors reelected were Alexander, L. M. Hands of Madison, Wis.; A. S. Puelicher of Milwaukee, Wis.; Judson Rosebush of Appleton, Wis., and Guy O. Babcock and C. A. Jasperson, Port Edwards.

At the directors' meeting later in the day, the following officers were reelected: Mr. Alexander, president and general manager; Mr. Babcock, vice president; Mr. Jasperson, secretary-treasurer, and Harry Deyo, assistant secretary.

Crevoshay Due Back

BOSTON—Maurice Crevoshay, of the U. S. Army and president of the Merit Paper & Chemical Company, is about to return from Europe. Paul N. Caplan, treasurer of the Merit company, has gone on a buying trip in the South and West. The Merit company has added two new salesmen to the sales force, Max Strowman and Robert Cushman, both of them Army veterans from the South Pacific.

Brown Profits Rise In 28-Week Period

BERLIN, N. H., July 19—In an interim earnings statement covering the 28 weeks ended June 15, 1946, released today by Frederick G. Coburn, president, Brown Company, and its Canadian subsidiary, Brown Corporation, producers of pulp, paper, towels, conduits and other products, show consolidated net profit of $879,868 after provision for taxes and all other charges. Net profit after all charges for the comparable period of 1945 was $821,263. For the 28-week period, net profit before taxes was $1,398,868 in 1946 and $1,982,263 in 1945. Income taxes for the respective periods were $519,000 and $1,161,000.

Subsidies received from the U. S. Government on sales of certain grades of pulp were higher in 1946 but such subsidies terminated June 30.

Rand Declares Norwood Is Not Liquidating

FLORENCE, Mass.—Rumors that the Norwood Manufacturing Engineering company, makers of paper making machinery, are liquidating, are "not true at the moment," N. P. Rand, president, stated today in response to a question from PAPER TRADE JOURNAL.

Rand added that anything was possible when a company was in the process of reorganization, however. He stated that because of the slow flow of raw materials some 18 hands at the plant had been laid off temporarily and he added that these men would be called back to work when the materials became plentiful.

Mead Corp. Profits More Than Double

The Mead Corporation, paper manufacturer, reported late last week for the twenty-four weeks ended on June 15, a consolidated net profit of $1,276,117 after all charges, equal to $1.51 a share on 707,394 shares of common stock. This compares with $511,262 or 43 cents each on 693,612 common shares earned in the corresponding period a year ago. Net sales of $22,521,496 compared with the $18,765,752 volume for the 1945 period.

For the twelve weeks to June 15, the net profit was $701,627, or 85 cents a common share, on net sales of $11,366,120, compared with $264,142, or 23 cents a share, on net sales of $9,555,537 last year.

Market Shows Restraint

CHICAGO—All reports indicate that the paper trade locally is continuing to give a good account of itself sans price control. Few and far between are reports of any "gouging" as the industry moves slowly and with commendable restraint. There is recognition of the fact that higher prices are certain and that there exists a lag between retail, jobber and manufacturer prices which will have a direct bearing on the situation. Prices all were at ceiling tops but, it was reported, only occasional bursts upward were noted and these at points where they were said to be obvious inequities.

Waste paper collections were said to be seasonally good, perhaps more steady than had actually been expected. Genuine restraint and caution were also reported in this important branch of the industry.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending July 20, 1946

STOCKS

	High	Low	Last
A. P. W.	8⅛	8	8
Armstrong Cork Co.	57	52½	57
Celotex Corp.	33½	29¾	31¼
Celotex Corp., pf.	22¾	21¼	22
Certain-Teed Products Corp.	24¾	22¾	23⅛
Certain-Teed Products, Corp., pf.	....	....	....
Champion Paper & Fibre Co.	56½	52½	53
Champion Paper & Fibre Co., pf.	112	111½	112
Congoleum Nairn Co.	35	33⅞	34¾
Container Corp. of America	52½	48¾	51⅝
Continental-Diamond Fibre Co.	14	13¾	13¾
Crown-Zellerbach Co.	35	33⅜	33⅜
Crown-Zellerbach Co., pf.	109⅜	108¾	109
Dixie Cup Co.	45	42	43½
Dixie Cup Co.—A	59½	58	58
Flintkote Co.	39⅛	36¼	38⅛
Flintkote Co., pf.	114	114	114
Robert Gair	10¼	9⅝	9⅞
Robert Gair, pf.	20½	20¼	20¼
International Paper Co.	49	47	47½
International Paper Co., pf.	122	118	118
Johns-Manville Corp.	145	140	144¾
Johns-Manville Corp., pf.	130	124¾	129½
Kimberly-Clark Corp.	67	65½	65½
Mac Andrews & Forbes	41	39½	41
Mac Andrews & Forbes, pf.	....	....	....
Masonite Corp.	67½	66½	67
Mead Corp.	26¼	24¾	25¾
Mead Corp., pf. A—6%	....	....	....
Mead Corp., pf. B—5½%	....	....	....
National Container Corp.	32⅝	31¼	31½
Paraffine Companies, Inc.	....	....	....
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	28¼	27	27½
Rayonier, Inc., pf.	38	37¾	37¾
Ruberoid Co.	53¼	51¾	53
Scott Paper Co.	59	58	58⅛
Scott Paper Co., pf.	108	108	108
Sutherland Paper Co.	46½	41½	46
Union Bag & Paper Corp.	36½	34	36
United Paperboard Co.	14¼	14	14
U. S. Gypsum Co.	122¾	122	122
U. S. Gypsum Co., pf.	204	203	203
West Virginia Pulp & Paper Co.	48	46¼	46¼
West Virginia Pulp & Paper Co., pf.	113½	112½	112½

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3¼s '60	105	105	105
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	105	105	105
International Paper Co. 5s '47	101¼	101	101
Mead Corp. 3½s '53	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending July 20, 1946

STOCKS

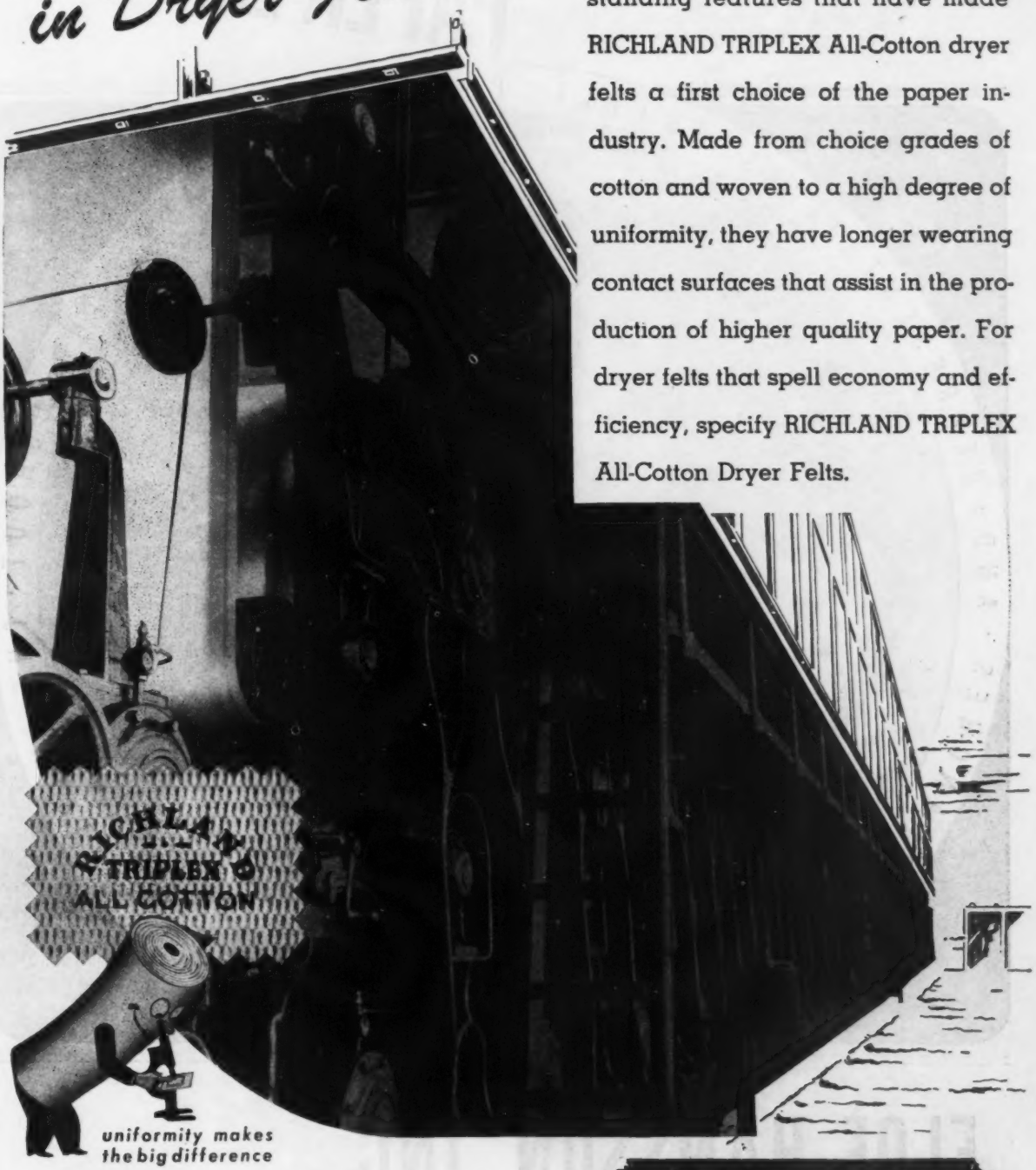
	High	Low	Last
Great Northern Paper Co.	44½	41	41
Hummel-Ross Fibre Corp.	17	15¾	16
St. Regis Paper Co.	14¼	13¼	13½
Taggart Corp.	10⅜	9⅞	9⅞

BONDS

American Writing Paper Co. 6s '61	103	103	103

For Economy in Dryer Felts . . .

Longer lasting, minimum stretch and shrinkage, and high porosity with lower steam consumption are the outstanding features that have made RICHLAND TRIPLEX All-Cotton dryer felts a first choice of the paper industry. Made from choice grades of cotton and woven to a high degree of uniformity, they have longer wearing contact surfaces that assist in the production of higher quality paper. For dryer felts that spell economy and efficiency, specify RICHLAND TRIPLEX All-Cotton Dryer Felts.



uniformity makes the big difference

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For more than thirty years, GOSLIN-BIRMINGHAM products have been acknowledged 'standards of equipment' for pulp and paper mill use.

Choosing a product of reputation is a tribute to experience.

GOSLIN-BIRMINGHAM offers you the products of its experience . . . quality equipment, reliable and consistently performing products, low in operational and maintenance costs.

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The BROUGHTON

S-10-H OSCILLATING SHOWER

for

Cylinder Moulds, Thickeners, Felts, Wire and Vats

equipped with

NEW HYDRAULIC OSCILLATION

Pat. November 3, 1942—2300909
(Other Patents Applied For)

The same water drives the oscillator that passes through the shower. No grease or oil. Everything water lubricated. Compact and easily installed.

Requires less than 7 gallons per minute of FRESH FILTERED water per 100" of wire to do a thorough job of continuous cleaning.

Savings on cylinder machines in excess of 200,000 gallons each 24 hours.

Can be equipped with non-oscillating adjustable deckle edge jets.

Same shower can be applied to any position where a shower is necessary.

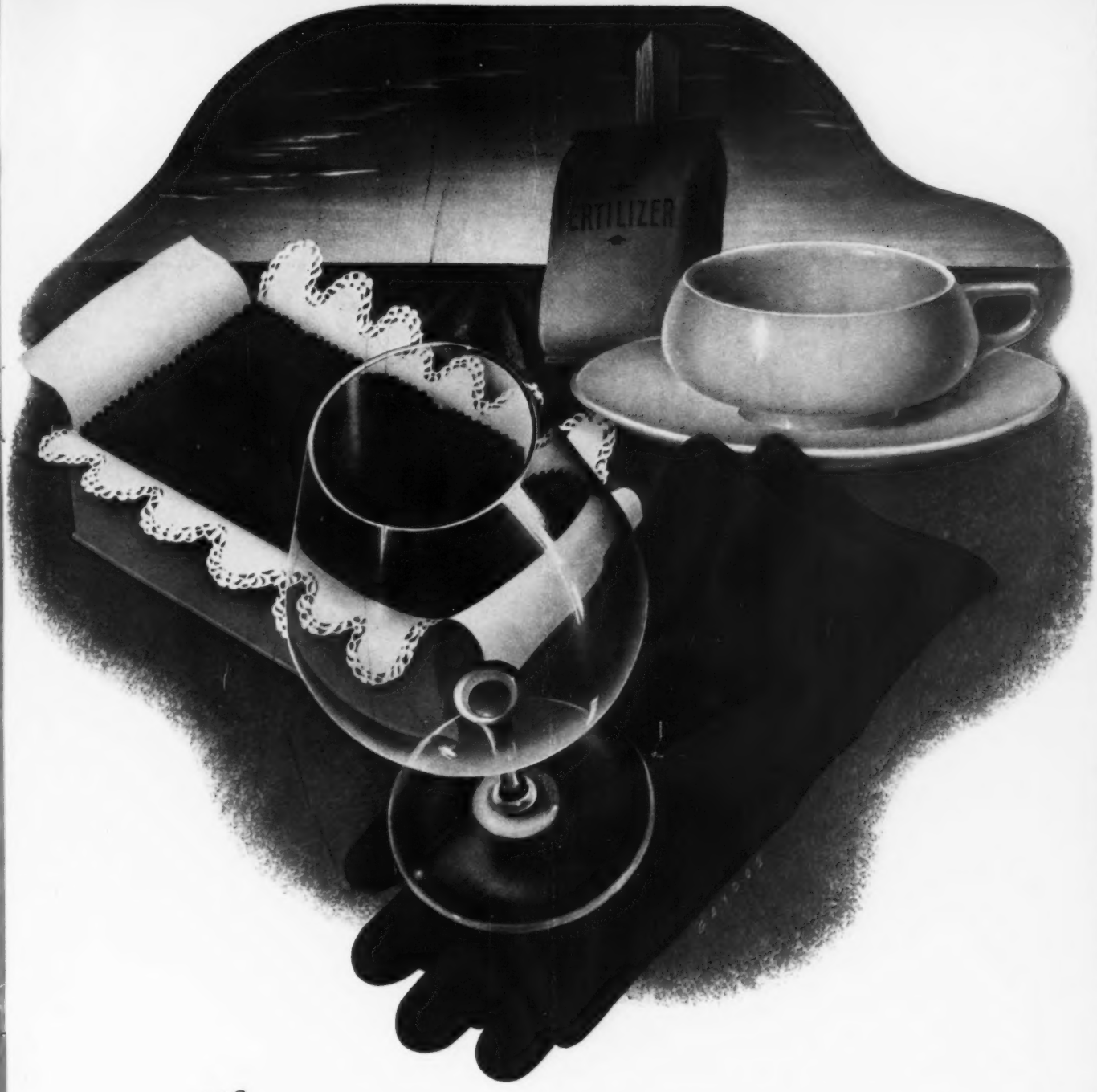
We are also manufacturers of of S-13-H Showers for cleaning head box cylindrical screens.

Bulletin upon request

A. E. BROUGHTON & COMPANY

Manufacturers of Oscillating Showers, and Unit Vacuum Controls for paper machine suction boxes.

GLENS FALLS, N. Y.



Highly essential are the diversified uses of carbonate of potash. In many types of products it provides a quality or combination of qualities that make for complete effectiveness and basic value. Among such products are glass and ceramics, soaps, fertilizers, tanning materials, chocolate "dutching" processes, engraving and lithography. As the pioneer producer of carbonate of potash in this country and for several years the only American producer, Niagara offers you the benefits of experienced counsel and advanced knowledge in using carbonate of potash to obtain the most economical and satisfactory results.

An Essential Part of America's Great Chemical Enterprise

Niagara Alkali Company

CAUSTIC POTASH • CAUSTIC SODA • PARADICHLOROBENZENE • CARBONATE OF POTASH • LIQUID CHLORINE • NIAGATHAL

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B-S-W Builds Camp On Alberni Canal

VANCOUVER, B. C.—Bloedel, Stewart & Welch Ltd., is erecting a camp on Alberni Canal, fourteen miles from Franklin River. The camp will provide accommodation for about eighty families and up to four hundred men. The camp will be one of the most modern of its type in Canada, and will be laid out on the lines of a village, with sewers, plumbing, electric light and a central heating system. Erection of a two-room school, and a recreational and community hall are included in the plans, and a recreafield will also be developed.

The camp will be connected by a company railway with the present base camp at Franklin River, and a speeder with passenger accommodation for 40 will be placed in operation between the two camps, while a regular daily boat will operate between Franklin River and Port Alberni, giving the residents of both camps access to the city of Port Alberni.

Construction of a new camp will occupy about 18 months and work will be commenced in the immediate future. Shortage of building materials prevented an earlier completion of the project, according to Harold Brownson, resident camp foreman, and Jack Bell, assistant.

John S. Mottishaw, chief forester for Bloedel, Stewart & Welch, Ltd., states that development is part of the company's plan to organize its logging operations on a more systematic and permanent basis. He estimates the new camp will continue in operation for at least 15 years.

B. C. Pulp & Paper Again In Production

VANCOUVER, B. C.—Operations recommenced at the Port Alice plant of the British Columbia Pulp and Paper Company in mid-July, according to Lawrence Killam, president of the company. Operations of the Woodfibre plant are scheduled to commence in the immediate future, Mr. Killam adds. He states that production will continue far behind the demand for some time as paper orders are increasing and demands for supplies are being received by the company from many markets to which it had never previously catered.

Marathon Stages Day of Golf

MENASHA, Wis.—About 175 persons took part in the annual golf jamboree for men employes of Marathon Corporation on July 20 at the Ridgeway Golf Club. Foursomes started teeing off in the morning, and play was continued throughout the afternoon. Dinner was served at 5 o'clock in the afternoon, and prizes were awarded following the dinner.

Collins Plans Playgrounds For Wilbraham Children

NORTH WILBRAHAM, Mass. — Another in a number of civic improvements with which the Collins Manufacturing company has been identified in the past few years is the project for developing the Grassy Hollow playground and its upkeep and future development for the benefit of all children of the town.

Work is scheduled to begin immediately, according to Paul C. Bast, company vice-president, who has received a letter of acknowledgment from the Wilbraham park commissioners, in response to his offer to the park commissioners and the Collins AA to undertake this development.

Modern playground equipment has been ordered and delivery is expected by the time the physical layout has been completed.

Kimberly-Clark Reports 90 Per Cent Have Returned

NEENAH, Wis.—Ninety percent of the original 445 permanent employes of Lakeview mill of Kimberly-Clark Corporation who entered the military service have returned, have gone to school, or otherwise have been accounted for, according to figures released last week by the Corporation. Only 39 remain to return. During the early months of the draft, Lakeview mill was hard hit.

In the adjustment period in which the veterans returned to the Lakeview payroll, no one was forced out of employment. Women were taken off men's jobs and returned to their normal occupations, and it was necessary to demote some. However, with future expansion plans and the return to a 40-hour week, many will return to the jobs they held during the war.

Daley Forms Own Company

CHICAGO — Walter Daley, former sales manager of the Watab Paper Company and representing that firm in this area, has opened his own business to be known as Daley Papers, Inc., Mr. Daley grew up in the paper business, having acquired his interest in the trade from his father and grandfather. He began his business career with the Port Huron Sulphite and Paper Company, followed that twenty-year stint up with his Watab experience and now holds forth at 400 West Madison Street with every prospect of making a real success of Daley Papers, Inc.

Fox River Would Make a Lawn

APPLETON, Wis.—Fox River Paper Corporation has asked the City of Appleton to subtract eight feet of land from the east side of Appleton street and add an equal area to the other side of the street, in order to allow for landscaping in front of the company's new office.

Plan Pulp Mill At Blind River

TORONTO — Construction of a new pulp mill that may cost $10,000,000 is being planned for Blind River, Ont., east of Sault Ste. Marie, according to Hugh MacKay, Montreal, president of J. J. McFadden Lumber Co. and Huron Forest Products Co.

The proposed mill, Mr. MacKay said, would tie in with the operation of the McFadden lumber plant at Blind River, which would operate the mill for the Huron Forests Products Co. The Mead Corp., one of the major U. S. pulp and paper concerns, has an interest in the Huron Forests Products Co.

Operation of the pulp mill in conjunction with the lumber mill, it was explained, will provide almost total utilization of wood products cut on the company's Mississauga limits. Some types of timber have little value as lumber, but could be cut for pulp.

The size and cost of the mill, Mr. MacKay said, have not been determined, "although $10,000,000 appears to be a fair estimate." When the mill will be built, or even if it is feasible at this time, is something he could not say. "It will depend on costs and whether or not we will be able to get the building materials," he said.

Construction of the pulp mill, Ontario government officials explain, will increase to about $100,000,000 the money spent on improvement and new mills in Ontario's newsprint industry within the last few years. Agreements calling for expenditures of over $50,000,000 have been made between the government and the companies concerned.

Officials of the department of lands and forests said the joint operation of a sawmill and a pulp mill is the first major one of its kind in Ontario under one ownership. Some other pulp and paper mills hold their limits under agreement to utilize all forest products, but none owns its own sawmill.

The projected Blind River operation follows the pattern of Sweden, where waste products from sawmill operations—slabs, bark, and even sawdust—are used to manufacture sulphate pulp used in the manufacture of coarse paper. Recent refinements in technique have made it possible to make pulp for newsprint from lower grades of wood. Another feature of the operation is that waste in logging operations would be eliminated. Timber useless in the sawmill will be cut and used in the pulp mill.

Avery Returns from England

GLENS FALLS, N. Y.—True M. Avery, vice-president of the Union Bag & Paper Co., has returned from a business trip to England and related his experiences this week before the Rotary Club. He delivered an illustrated lecture on the damage done by bombs.

Trust Suit Aimed At Stencil Paper

WASHINGTON — Attorney General Tom Clark on Monday announced the indictment of five corporations and six individuals on charges of conspiring to restrain and monopolize the mimeographing industry, its action extending even to the paper stock from which stencils are made.

The indictment named: A. B. Dick Company, Chicago; the Mimeograph Company, Ltd., Chicago; C. H. Dexter & Sons, Inc., Windsor Locks, Conn.; John A. Manning Paper Company, Inc., Green Island, Troy, N. Y.; Aldine Paper Company, Inc., New York City; Albert B. Dick Jr. of Lake Forest, Ill., president of A. B. Dick Company and the Mimeograph Company, Ltd.; Edison Dick of Lake Forest, Ill., vice-president of the A. B. Dick Company and the Mimeograph Company, Ltd.; Dexter D. Coffin of Windsor Locks, Conn., president of C. H. Dexter & Sons, Inc.; Herbert H. Griswold of Windsor Locks, Conn., vice-president of C. H. Dexter & Sons, Inc.; James F. Adams of Albany, N. Y., president of John A. Manning Paper Company, Inc., and Harry E. Gould of New York City, president of Aldine Paper Company, Inc.

Reached in New York, Gould, whose company is a distributor of the base tissue stock, a small part of the completed mimeograph stencil, declared, "I am at a loss to understand the anti-trust charges against Aldine Paper Company and myself as its president. The Government's indictment covers a period of fifty years of the A. B. Dick Company's existence. We, on the other hand, are dragged into this prosecution despite the fact that we have been distributors of stencil tissue only since 1942. None of the charges involves us, except the one relating to the sale of base tissue."

Mr. Gould emphasized that his company had no business relationships whatsoever with the A. B. Dick Company. He made it clear that unlike the Dick concern, his company neither manufactures nor sells duplicating machines or supplies. Aldine Paper Company, he said, is concerned only with the sale of the base tissue. Moreover, Gould pointed out, the sale of this type of paper is only a small part of the Aldine business.

Expressing confidence of complete vindication, Gould called attention to the fact that his company sells base tissue to many companies who are in direct competition with the A. B. Dick Company. "The charge that we conspired with a company with which we have no business dealings, and with which we are frequently indirectly competitive, is as inconceivable as it is baseless."

A. B. Dick Jr., said that his company competed "with more than fifty manufacturers of duplicating machines and duplicating supplies."

Djerf Wins Mando Scholarship In Forestry Research

MINNEAPOLIS—The graduate scholarship in forestry research in the Forestry College, University of Minnesota, offered by Minnesota and Ontario Paper Company, has been awarded to Harvey E. Djerf of this city. This scholarship with a value of $900 was made available for the first time this year to graduate students in the forestry school.

Mr. Djerf received his bachelor of science degree from the Forestry College at the University in 1943. He served 34 months in the army, 18 of which were in the European theater, returning to his studies in January of this year.

The purpose of this research project, according to R. W. Andrews, vice president in charge of production for Mando, is the study of the different methods of slash disposal to determine the effectiveness of each in the reduction of fire hazard, and the effect of different methods on the establishment and growth of natural forest reproduction.

The award to Mr. Djerf was announced by Dr. Henry Schmitz, dean of the College of Agriculture, Forestry and Home Economics of the University.

Central Paper Completes Wage Negotiations

MUSKEGON, Mich.—A mutually satisfactory wage adjustment has been announced by the management of the Central Paper Company, Inc. Friendly discussions extending over a period of the past several weeks between the company and the employees as represented by Local 1015 United Paper Workers CIO has ended with the acceptance by the workers of an eight cents an hour increase payable to all employees and retroactive to July 1st.

The company manufactures a line of specialty custom built papers to exacting specifications and has earned for itself a unique position in industry. Planned production and sales insures Central's employees year round job security. This new increase over wages already equal to or higher than those paid by the other companies in the same field is in line with the company's policy to continue to reward those employees who are responsible for Central's outstanding record.

Rotary Elects Cyrus Heigl

SOUTH BELOIT, Ill.—Cyrus H. Heigl, vice-president of the John Nielsen Engineering Company, was recently elected president of the Beloit, Wis. Rotary Club. Mr. Heigl is the son of Michael Heigl, tour superintendent of the Northern Paper Mills, Green Bay, Wis., and was formerly with the Beloit Iron Works, Northern Paper Mills and the Scott Paper Company. He is a member of the Technical Association of the Pulp and Paper Industry.

Ashman Tells Part That Paper Played

NEENAH, Wis.—The contribution of the pulp and paper industry in the war effort was revealed by the fact that ninety percent of the 700,000 items necessary for troop maintenance used paper products, according to Burt Ashman, of the Institute of Paper Chemistry, Appleton, Wis., who discussed the problems and research at the Institute in a talk last week before the Neenah Kiwanis Club.

He pointed out that hard work and patient efforts go into research and that the results often are obscure. Rapidly changing situations sometimes meant that the developments were not practical. He cited the paper hut developed at the Institute, which has been undergoing weather tests for almost two years, pointing out that only one model was completed because the paper situation became so critical that materials couldn't be used.

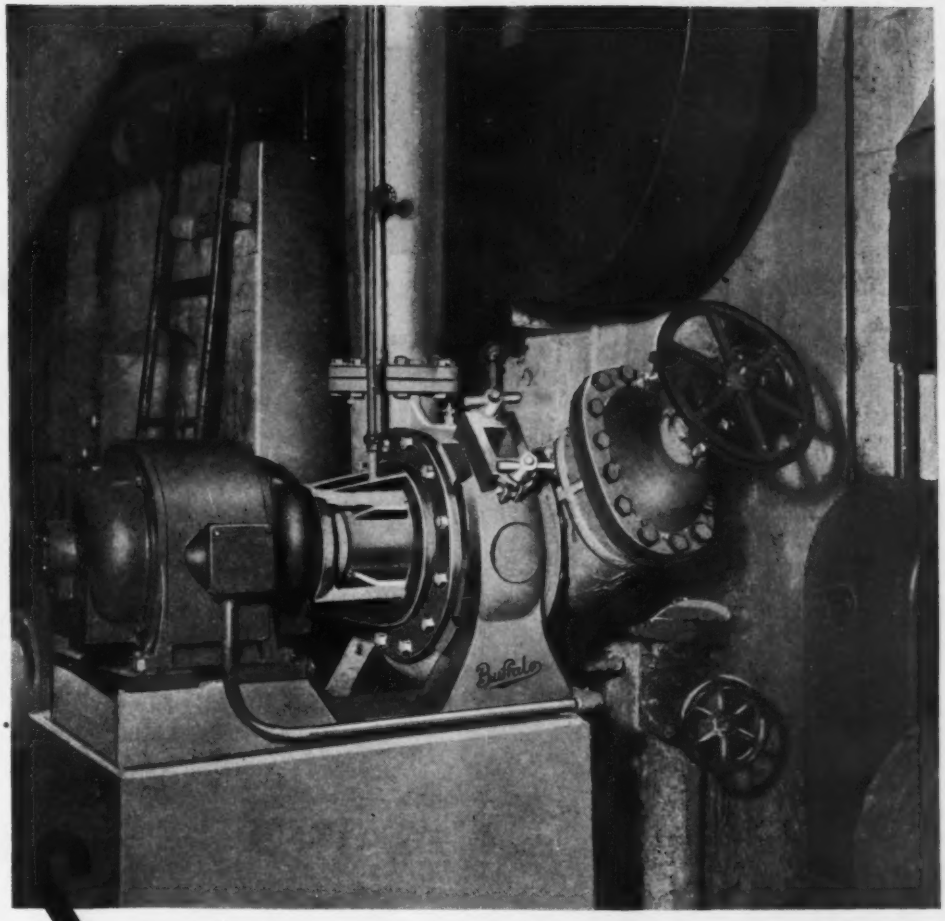
Mr. Ashman also referred to experiments in wood hardening, antiseptic materials, filters, paper twine, fungus resistant textiles and paper tarpaulins. Then he told of problems in allied fields, in development of raw materials and reutilization of materials, which were referred to the Institute. He described the Institute's work with the Quartermaster corps of the Army on packaging supplies, particularly with regard to waxes, flexible papers and coverings to withstand high and low temperatures. This work, he said, has become important in distribution of food products today.

Academically, the Institute now is reverting to pre-war status. Orientations courses are being given to those students who were in service, the speaker said. The Institute has its own housing problem because many of the former students now are married and have families.

The Institute is receiving requests for technical information from all over the world as attempts are being made to build up depleted libraries. On just one day the Institute had technical visitors from India, Sweden and Norway.

National Box Seeks Bids On New Plant Building

VANCOUVER, B. C.—National Paper Box Ltd., is erecting a new plant between Shaughnessy and Oak Streets on the B. C. Electric interurban tracks at Vancouver. Tenders have been invited from selected contractors by Mercer & Mercer, Vancouver architects. The building is estimated to cost $250,000 and will be two stories in height and 337 by 270 feet in area. The floors will be of concrete with reinforced concrete frame. Processing of the company's products will be handled on the ground floor on the assembly line plan, while the second floor will be used for the employees' lunch, rest rooms, storage space, etc.



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The design of Buffalo rotors and casings assures efficient stock handling. Split- and solid-shell types, single- and double-suction to meet every mill requirement. Bulletin 953F gives complete data.

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"Buffalo" **PAPER STOCK PUMPS**

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PROBLEM?

. . . A LETTER TO HERCULES MAY GIVE YOU THE ANSWER, as it is doing for hundreds of others every month . . .

Are you seeking chemical materials that might better the quality or performance of your products, or improve their processing? If so, take a cue from the hundreds of other manufacturers who write to us every month for help in the selection and use of Hercules chemical materials.

Hercules' broad experience in the development, production, and application of terpene and rosin chemicals, synthetics, cellulose products, chemical cotton, and other chemical materials for the paper industry, can guide you toward the most effective and economical ways to employ these products.

Drop us a line today, outlining your problem or mentioning the Hercules chemical materials in which you are interested. Your inquiry will receive prompt attention, no matter how moderate your needs.

*Reg. U. S. Pat. Off. by Hercules Powder Company

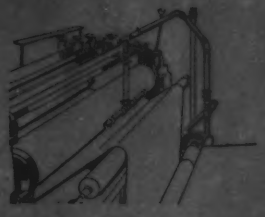
CHEMICAL MATERIALS FOR THE PAPER INDUSTRY

Hercules chemical materials for the paper industry include:

Staybelite* Esters . . .
Wax additives for coating and laminating processes, modifiers for GR-S and Neoprene latices for impregnating and laminating paper and board stocks.

Hercolyn* . . .
A liquid resin for transparentizing. Possessing excellent fiber-wetting properties, it is useful for the production of transparent and translucent papers.

Chemical Cotton . . .
Hercules chemical cotton is a pure cellulose, in loose or sheet form. Cleanliness and brightness are outstanding.



Casein . . .
Hercules casein is used as the binder in clay-coatings, and as an adhesive in laminants and paper converting.

Paracols* . . .
Water-dispersible wax emulsions used to increase finish, flexibility, printability, and waterproofing of paper.

Chemicals . . .
These include sulphonated oils, foam killers, eveners, acids, alkalies, alum, and satin white.

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P-65

It won't work, Mr. Wiz!

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Technical bulletins are available upon request.

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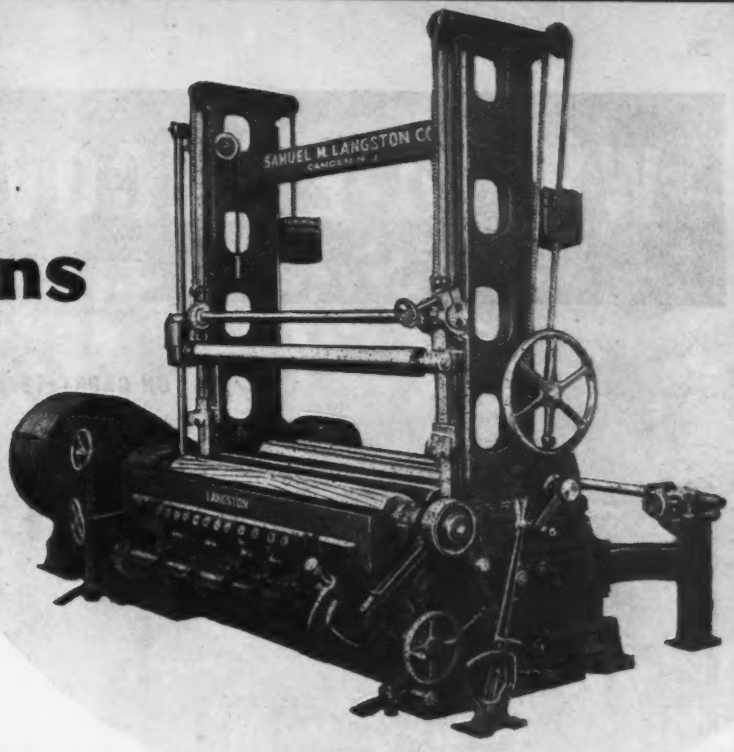
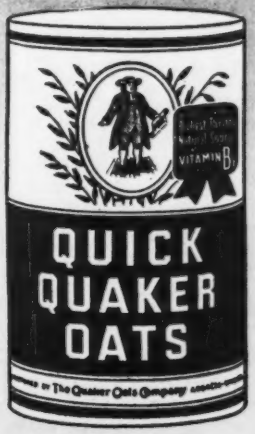
Successful Combinations



On the breakfast tables of America, "oatmeal-and-cream" has always been a popular team. The familiar Quaker Oats package that brings you this wholesome food is made with the help of a Langston "BA" Slitter and Roll Winder. Noted for the excellence of their products, The Quaker Oats Company, Chicago, find that Langston Slitters fully meet their exacting standards in the production of the package.

Wherever paper is processed; in the Mill, the Finishing Room, or the Converting Plant—Langston Slitters and Roll Winders assure dependable, trouble-free service.



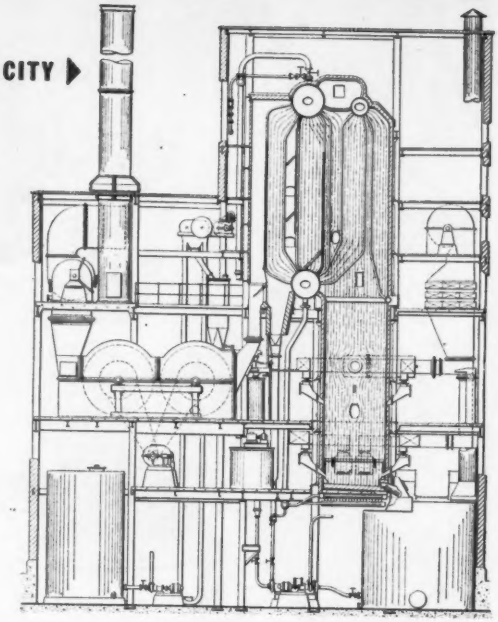
SAMUEL M. LANGSTON COMPANY
CAMDEN, N. J.

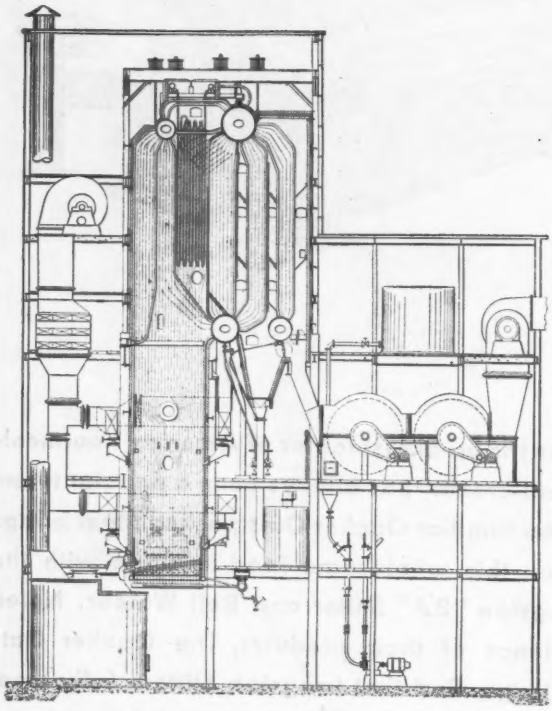
Langston

SLITTERS AND ROLL WINDERS

WHY C-E RECOVERY UNITS

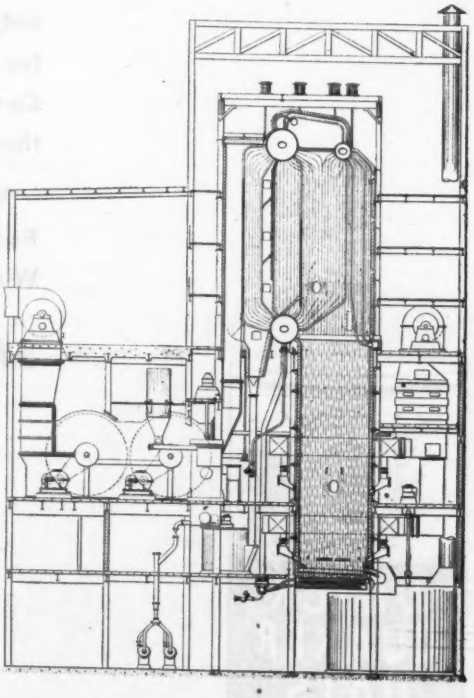
95 TON CAPACITY ▶





▲ 160 TON CAPACITY

265 TON CAPACITY ▶



LOOK SO MUCH ALIKE

regardless of size!

Examine the drawings on the opposite page. Obviously they look very much alike. Yet these C-E Recovery Units were designed to serve mills ranging from 95 tons to 265 tons capacity. And units of 300-ton capacity, recently ordered from C-E, will look like these, too.

Why?

The reason is simple and sound. The overall effectiveness of the C-E design is a service-proved fact and has been since 1938 when the first unit of its type was installed. There has been no motive, therefore, to change the original basic design. Contributing to its success are numerous factors, among which the following are primarily important:

1 ***Vertical Bent Tube Boiler Above the Furnace***
Minimizes soda accumulation on heating surfaces.

2 ***Superheater Directly Above the Furnace***
Assures maintenance of uniform steam temperatures.

3 ***Vertical Gas Flow Substantially Parallel to the Boiler Tubes***
Practically eliminates right angle flow of gases against heating surfaces.

4 ***Cascade Evaporator Scrubber***
Highly effective use of low temperature gas as additional evaporation in the pulp mill. Produces exceptionally good control.

5 ***All Metal Furnace***
Maximum heat absorption and low maintenance. Absence of refractory means cleaner smelt.

Of course, improvements in details have been added from time to time. C-E pioneered, for example, the application of air-puff soot blowers — improved wall and casing construction — extended the use of instruments — devised more convenient access for cleaning — revised the arrangement of heating surfaces to minimize lancing, etc. But the basic design remains the same — because it produced outstanding performance records from the first unit built right up to those most recently put in service.

A-985

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Priceless is our more than 67 years of experience gained by research, designing and fabricating hydraulic machinery—and valuable will it be to you, if you place your power problem in our hands!

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S. MORGAN SMITH COMPANY
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POWER by SMITH

get the most

FOR MORE AND MORE PAPER

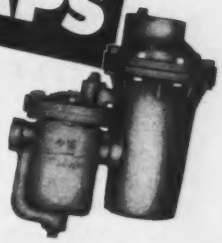
with

ARMSTRONG STEAM TRAPS

modernize DRAINAGE DRYER SYSTEMS

ARMSTRONG Steam Traps for paper machine drainage are specially designed for this service — not the same as traps used for other purposes. These traps automatically discharge both air and condensate as fast as it accumulates, assuring you of maximum dryer temperatures. Efficient drying is one of the most important considerations in the production of paper, and efficient dryer drainage is one of the most important considerations in efficient drying. To secure maximum production plus *uniformity* of drying, dryer temperatures must be maximum and uniform throughout the machine. Only if you have efficient drying can you realize full production and full return on the mill investment.

You can get a modern, high efficiency drainage system by calling or writing Armstrong. Armstrong has the equipment and experience to give you a simple, economical solution for your particular problems. Write for information. ARMSTRONG MACHINE WORKS, 318 Hoffman Street, Three Rivers, Michigan.



FEATURES OF ARMSTRONG TRAPS . . .

1. Condensate discharged as fast as it accumulates.
2. Automatic air elimination.
3. Long life parts—chrome steel valve and seat, hardened, ground and lapped. 18-8 stainless bucket assembly.
4. Low maintenance.
5. Choice of body styles: with side-inlet and side-outlet pipe connections, or bottom-inlet top-outlet.

Inverted Bucket Steam Traps for Every Paper Mill Requirement

ARMSTRONG STEAM TRAPS

Dryer Drainage System Trapping and Engineering

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

The Case for Casein

No matter what may happen to OPA within the next few days, or what may happen to the paper industry at the hands of a newly created government agency with price regulatory powers, plenty of problems are pressing their claims for attention on the man responsible for turning out production. As they affect him they are bound to be reflected pretty accurately in the problems of the sales department, and through its work, to the distributor and the dealer. Only now is the industry working out from under a problem artificially created by another government agency which had arbitrarily curtailed starch in favor of other uses for grain. Only a short time further back an equally arbitrary limitation on the price of casein had thrown a menacing shadow over the production of paper by the simple mechanism of creating a more favorable market in other fields for milk products. That shadow, it appears, is to remain a long while, for the reason that cheese and other edible products offer a more attractive market than does casein, from a price standpoint. A recent study of the market brings out the full impact of this condition. In summary some of the facts that this study highlights are worth knowing, even if they only serve to explain shortages and costs, or to help gain an appreciation of what the paper business has accomplished.

Cheese production, according to this study, affords a higher cash return to the producer than does casein per unit volume of raw material. Many dairies in Argentina as well as in the United States are making cheese and skim milk powders in preference to casein. The milk supply in Argentina has also declined materially.

The current cost to the domestic producer of casein is from 38 to 42 cents a pound, depending on the prices of skim milk and cheese in the plant's locality. While domestic casein producers are waiting to see what price ceilings may be reestablished on edible dairy products and casein, casein costs and prices will follow the levels of edible dairy products and production will depend on whether the re-established ceilings will permit a profit above manufacturing costs.

Casein may be expected to remain in tight supply until November according to informed circles. Production here may taper off, since the normal peak output because of flush milk supplies in May and June. The flush production season does not begin in Argentina until October. Prices may also loosen a bit late in the fall due to the expected heavier Argentine production but since from two to three months are required for shipment to the United States the lower priced casein would not be available here until January or February.

Pending the re-establishing of ceiling, domestic casein prices may go somewhat higher and prices in Argentina may continue to rise during the next two months.

Meanwhile, the demand this year is estimated upward of 75,000,000 pounds. The average annual consumption, 1941 to 1943, by the paper industry which used casein as a coating, was 35,700,000 pounds. In its peak year this industry used 44,300,000 pounds. Glue producers absorbed 8,700,000 pounds a year as an average taken for 1941, 1942 and 1943. The average consumption for the same period was 6,700,000 pounds by paint manufacturers and 4,800,000 pounds in plastics.

Domestic production, far below normal, totaled 3,127 tons in the first five months of this year. May production of 1,530 tons was double the April production. June output statistics are not yet available but major producers expect the total to exceed that of May. However, July production may show some decline due to the normal production pattern and the uncertainty in the price situation.

Argentina production in the first five months was 13,446 metric tons. Total exports for the same period were 14,961 tons, of which 8,406 tons were sent to the United States. May production in the Argentine totaled 2,676 tons, and exports were 4,408 tons, of which 3,296 tons went to the United States.

After the United States, the largest importers of Argentine casein thus far this year were England, taking 3,100 tons in the first five months and Spain which imported 1,402 tons. In the same period Sweden obtained 437 tons; Switzerland, 225 tons; Norway, 282 tons; Holland, 206 tons, and Belgium, 142 tons. Smaller lots went to several other countries.

Casein is now from seven to ten cents a pound higher than the former ceiling and producers report that buyers are beginning to show some resistance to the higher price. At the same time, producers warn that it would require about five months for them to get back to the prewar production rate which was 48,000,000 pounds in 1938 even if ceilings are established that will permit them a fair margin of profit.

Calendar of Coming Events

September 20-21, 1946—Annual Meeting, Southern Paper Trade Association. Hotel Buena Vista, Biloxi, Miss.

September 26-28, 1946—TAPPI General Fall Meeting, Hotel Statler, Detroit, Mich.

October 2-4, 1946—TAPPI Engineering Conference, Pfister Hotel, Milwaukee, Wis.

October 17-19, 1946—National Paper Trade Association. Fall Convention, Edgewater Beach Hotel, Chicago, Ill.

TAPPI Notes

M. D. Reuben, formerly of the York Haven, Pa., mill of the International Paper Company, is now production manager for the Paper Drapery Company, Mohawk, N. Y.

Robert D. Cowherd, formerly of The Bristol Company, is now in the engineering division of the Commercial Solvents Company, Terre Haute, Ind.

Keith W. Max, formerly of the Navy, is now with the Thames River Division of the Robert Gair Company, New London, Conn.

Carl H. Nystrom, chemical engineer for the Northwest Paper Company, has been transferred from Cloquet to Carlton, Minn.

Hoke Martin of the Hercules Powder Company has been transferred from Kalamazoo, Mich., to Freeman, Ontario.

Charles W. Hoffman of the Riegel Paper Corporation, has been transferred from Milford, N. J., to 342 Madison Ave., New York, N.Y., as a sales engineer.

Donald Appleton is now assistant vice president in charge of manufacturing for the Oxford Paper Company, 230 Park Ave., New York, N. Y.

Benjamin M. Thomas has resigned as plant manager of the American Coating Mills.

Salvador Arena, formerly of Mexico City, is now located at Monte Esquinza 30, Madrid, Spain.

Herman N. Simpson is now engineer for Cellulose Engineers, Inc., 71 Columbia St., Seattle 4, Wash.

Arthur C. Dreshfield has succeeded Peter J. Massey as representative of the H. P. Smith Paper Company in the Technical Asociation.

Theodore J. Gross is now managing director of the Shipping Container Institute, 475 Fifth Ave., New York 17, N. Y.

Capt. C. E. Roth, formerly of the Army, is now pulp mill superintendent for the Mead Corporation Kingsport, Tenn.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
June 8	104.0	June 9	92.8
June 15	104.0	June 16	91.5
June 22	106.2	June 23	90.4
June 29	105.5	June 30	88.8
July 6	61.1	July 7	47.9
July 13	*95.2*	July 14	88.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	102.7	100.7	*104.6*							

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	78.6	86.7	93.1	96.3	87.6	87.2	87.6	*99.1*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

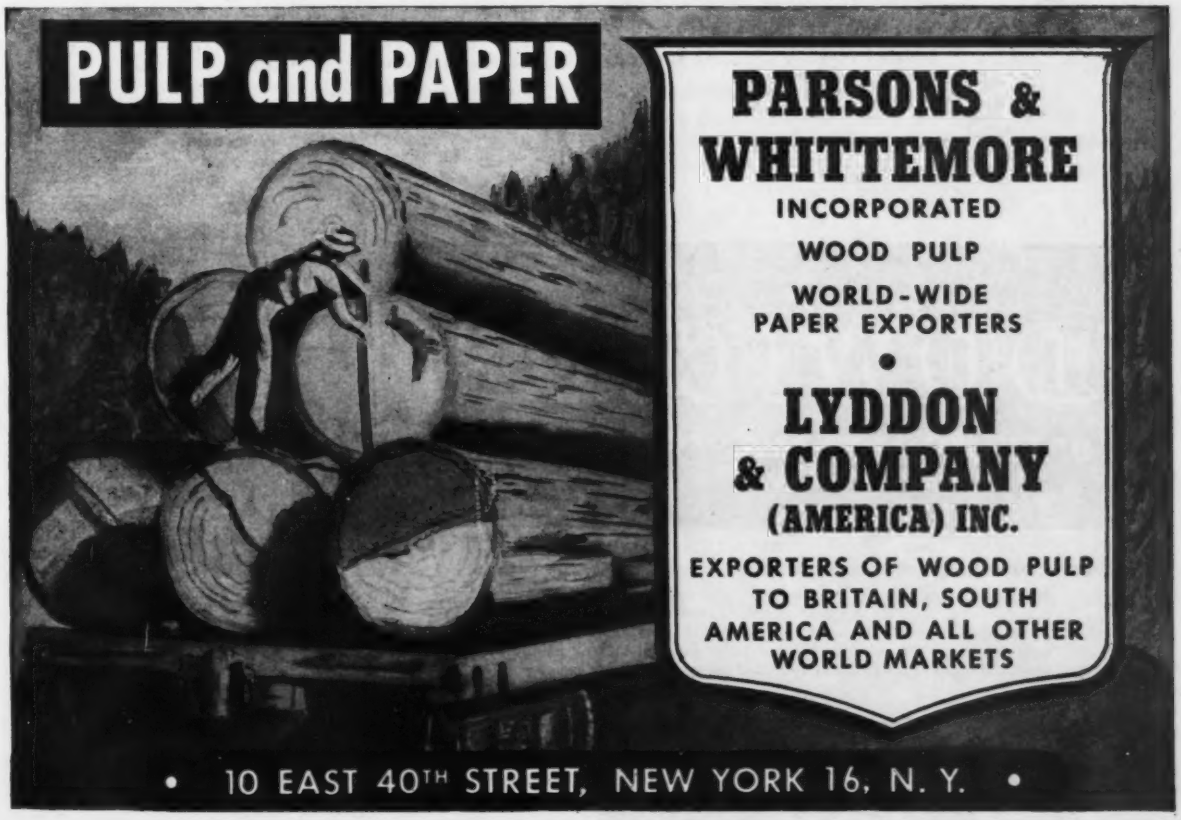
PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
June 8	96	June 9	97
June 15	98	June 16	96
June 22	97	June 23	96
June 29	98	June 30	96
July 6	70	July 7	62
July 13	*87*	July 14	90

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	99	94	*97*							

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.



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Choose Dowicides! Stop avoidable losses in your industry today!

DOWICIDE

germicides and fungicides

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DOWICIDES IN THE PAPER INDUSTRY

In paper manufacturing, Dowicides have proved their wide usefulness in combatting destructive mold. Dowicides have been found to increase wet felt life as much as 60 per cent. They also aid in slime control, in preserving log and pulp stock, in making packaging papers mold-resistant and in reducing maintenance costs.

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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

Nonfibrous Raw Materials Report—1945*

By E. N. Poor[1]

The year 1945 will be a memorable one because within its limits two great conflicts finished their course. However, it will be remembered as one of acute difficulties industrially because of shortages, government limitations, and general unrest which follows war. While many emergency restrictions were rescinded the supply picture of many essential raw materials remained gloomy.

In spite of the lack of improvement in the availability of some materials, it is significant that the production of paper and paperboard was at a high level, second only to the 1941 figure. This achievement can be attributed largely to a partial return to peace-time fields and to an increase of imported wood pulp. Attendant to high production the demand for chemicals remained heavy and in excess of supply in many cases.

Caustic Soda

Contrary to the expectations of most people, the end of the war has not been followed by an easing up of the alkali situation. Alkali plants are operating at full capacity and yet all of their products are being taken. It is believed that most of the paper mills are obtaining sufficient quantities of caustic soda to operate but at the same time they recognize that supplies of this material will be tight during the coming year.

Despite the fact that there has been and is an increased demand for caustic, there has been very little change in the price of this commodity. Certainly the manufacturers of caustic have not sacrificed their high standards of quality and do not intend to do so.

In regard to new uses, during the past year and a half several rag mills and a few wood pulp mills have found it advantageous to change from the use of calcium bleach to sodium bleach. This, of course, would mean a considerable increase in the consumption of caustic soda in the paper field. These mills have found that the use of sodium bleach gives them a considerable increase in the cleanliness of the pulp and some advantages in the way the pulp handles on the wire.

Advantage of Sodium Bleach Liquor

Among the advantages of sodium bleach liquor over calcium bleach liquor are the following:

Savings in Chlorine. Considerable amounts of chlorine may be saved when soda bleach liquor is used instead of calcium bleach. The saving is found in the fact that there is no sludge which has to be washed when soda bleach liquor is prepared. When preparing calcium bleach, it is necessary to rewash the sludge and regardless of the number of washings to which it has been subjected, the portion which must finally be discarded carried appreciable quantities of chlorine. In addition to the chemical saving there is a considerable saving of labor since it is unnecessary to have the men and equipment on hand for washing the sludge.

Disposal of Sludge. Since there is no sludge formed when sodium hypochlorite is used, it follows that there is no problem of sludge disposal. This avoids contamination of the water source with lime sludge and the consequent trouble which sometimes accrues to the mill from the Isaac Walton League and other bodies which are concerned with stream pollution. The problem of stream pollution is coming more and more under the control of state sanitary commissions and anything that can be done to reduce this, should be a good mark for any mill.

Savings of Lime. Since no lime is used naturally all is saved. While this remark might seem facetious, it is not, because the caustic in the sodium hypochlorite is almost entirely used up in the bleaching of the pulp. In the case of lime bleach liquor, very little lime reaches the pulp to be consumed. In addition to this the use of soda bleach liquor can be gaged in a more favorable range and allows the pH to be more easily controlled than in the case of lime bleach liquor.

Cleaner Pulp. When calcium bleach is used, there is always a deposit of calcium carbonate formed in the pipes used to carry it to the pulp. Occasionally this calcium carbonate deposit breaks loose and is carried to the pulp where it is very difficult to remove it. In the case of soda bleach the liquor is always clear and the amount of dirt carried over to the pulp is much less than in the case of the calcium bleach. Also since there is no lime present in the soda bleach, this cannot be precipitated on the fibers. Consequently the pulp may usually be washed cleaner when sodium hypochlorite is used. This results in a high quality pulp.

Saving in Space—Much less equipment is required to make the equivalent amount of sodium hypochlorite than calcium hypochlorite. This means a lower capital investment for a bleach plant in equipment and floor space and since it is unnecessary to circulate the caustic liquor when it is being chlorinated there is some saving in power. In addition to the saving of

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Member TAPPI; Chairman Nonfibrous Raw Materials Committee; American Cyanamid Co., Stamford, Conn.

labor given above the actual effort involved in making sodium hypochlorite is much less than making calcium hypochlorite. It is not necessary to handle lime or to slake lime since liquid caustic may be easily transferred by pump. The time required to make up a given batch of sodium hypochlorite bleach liquor, therefore, is much less than to make up the same quantity of calcium hypochlorite.

No substitutes are known which could be used in the paper industry to replace caustic soda.

Soda Ash

Soda ash (sodium carbonate) was produced at maximum plant capacity during the past year. The market will probably continue tight into early 1946 because of continued heavy chemical industry demand.

Deliveries of soda ash have been reasonably prompt considering transportation difficulties, and this condition will probably not be relieved until new railroad equipment comes into operation. Bagged ash shipments have been curtailed because of labor shortage which may continue in some measure throughout 1946.

The high quality of soda ash has been maintained under adverse operating conditions. Soda ash is one of the few basic materials used in the paper industry that has remained at the prewar price level, despite substantial increase in manufacturing cost.

Soda ash continues to be the cheapest and most readily used form of alkali for pulp manufacture. Deinking processes involved substantial consumption in 1945, and the continued pulp shortage and cost in 1946 will undoubtedly encourage retention of deink furnish in many paper specialties. Substantial quantities of soda ash have been used in semichemical pulping, and it is expected that this use will expand due to new interest in N. S. S. C. pulping and the reduction of byproduct sulphite on the postwar market.

Some reduction in soda usage in kraft mills may be expected because of the greater availability of salt cake and to technological improvements in kraft recovery process. It is also likely that the trend from straight soda pulping to the kraft process may reduce soda ash consumption.

Cessation of hostilities temporaily improved soda ash stocks, but the easement in market supply was not very extensive. The market quantity of soda ash in 1946 should be sufficient to meet industry demand, but will not be in over-supply.

Lime

Lime manufacturers look for a very brisk demand for lime in 1946. In fact, the end of the war has not developed a surplus of chemical lime.

Prices of chemical lime will not change unless O. P. A. grants an increase as a result of increased cost of manufacturing.

Magnesium oxide base replacing a calcium oxide base in the sulphite pulping process seems to be gaining ground. Since this is a definite change in the use of raw materials for making sulphite pulp, the development in the use of magnesium oxide in 1946 will be watched with a great deal of interest by the lime manufacturers as well as the pulp and paper industry.

Sulphur

Change in consumption of this material during this year: The shipments for 1945 were approximately 3,800,000 long tons, as compared to about 3,500,000 long tons in 1944. Production in 1945 was about 3,750,000 tons, compared to about 3,200,000 tons in 1944. Stocks at the mines have remained about the same at 3,500,000 tons.

There have been no variations in price as sulphur is still offered for sale at $16.00 per long ton f. o. b. cars mines.

The same high quality has been maintained as in previous years. The sulphur is guaranteed to be 99.5% sulphur, and free of arsenic, selenium, and tellurium.

There have been no new uses reported in the pulp and paper industry but as is usual each year there have been a number of new uses developed in the chemical, petroleum, and agricultural chemical industries.

No substitutes have been developed for sulphur, and as the production stocks and reserves continue to be adequate, no substitute appears to be required.

The war's end has meant the shutting down of military explosives plants which consumed considerable amounts of sulphur as sulphuric acid. This will not mean, however, that there will be a corresponding decrease in the consumption of sulphur, as some acid consumers such as the fertilizer industry were unable to secure as much acid as they could consume during the war, and it is believed that the demand for sulphuric acid and sulphur will continue strong for some time to come.

Salt Cake

The supply of salt cake was adequate to meet demand and prices were around the neighborhood of $15 per ton in bulk car lots.

Chlorine

There was no change of importance in the consumption of chlorine during last year.

No change was made in price and it is within the ceiling.

There was no variation in quality and new uses have been reported in pulp use.

Allocations by the War Production Board ended, giving industry opportunity to consume all of the product they needed without restrictions. Some end-uses now require less—others increased. To date there is little or no surplus and none anticipated for 1946.

Sodium Peroxide

Research and development work on sodium peroxide bleaching of mechanical pulps has reached the practical stage. Mill operations have shown that peroxide bleached groundwood can be used to advantage in the production of a range of papers, including book, magazine, catalog, directory, mimeo, tablet, tissue, and towelling and a number of specialty papers.

Under government allocation the use of sodium peroxide for pulp bleaching was restricted to supplying urgent war requirements. With the removal of wartime restrictions, consumption of this chemical for pulp bleaching has increased during the latter part of 1945 and is expected to show a further increase in 1946.

There has been no change in the price or quality of sodium peroxide during 1945.

Hydrogen peroxide and sodium perborate are interchangeable with sodium peroxide for pulp bleaching. Economic considerations govern the choice of a peroxygen compound for this use.

Sodium Silicate

The supply of silicates of soda during the past year was sufficient to meet all demands. With the war's end, demand slackened temporarily and convenient conversion to supplying the growing peacetime demands was possible. Consequently, the supply of sodium silicate during the coming year should meet all anticipated demands comfortably and no need for substitute materials is likely.

The prices for the various grades of sodium silicate have continued very stable—liquid and solid grades remaining at levels established under the NRA. The ability to continue to absorb various increased costs is doubtful and some upward revision of prices is possible, particularly if demand slackens.

Throughout the war period, all routine plant control and quality standards were maintained. Now, quality will certainly be continued on this same high basis.

The war's end will permit development of substantial demands for silicates of soda in the manufacture of gels used as desiccants and catalysts in various peacetime cracking and synthesizing processes, as an aid in coagulating and preventing corrosion in both raw and waste waters, and with peroxides for bleaching both groundwood and textiles. These developments should eventually interest the entire pulp and paper industry.

Rosin

Consumption of rosin was high in the paper industry during the first quarter of 1945, as well as in other consuming industries, and it was realized that production would be inadequate. Therefore, War Production Board established quotas under order M-387, the quota for paper being 70% of the same quarters of 1944. Under these restrictions available supplies were stretched through the year although stocks are expected to reach an all time low before the new gum rosin crop year begins on April 1, 1946.

Without ceiling prices which were in effect during 1945, it is difficult to guess what might have happened to rosin prices. An advance of 95c per 100 pounds was granted on gum rosin in August and market prices advanced the full amount instantly. Wood rosin ceiling prices have been maintained considerably below those for gum rosin.

While the ending of the war reduced some of the uses for rosin, potential demand has continued to exceed supplies. However, it is expected that production of both gum and wood rosin will be increased during 1946 and it appears that the paper industry may be permitted to operate for a considerable portion of the year 1946 without restrictions on the consumption of rosin. Supplies will be limited and adequate quantities will be available for domestic use only if exports are controlled.

Casein

Production of domestic casein during the year 1945 is not expected to exceed the 1944 total of about 15,000,000 pounds and consequently United States' demand has been satisfied only through continued importation of large quantities of the Argentine material. At the moment, there is very little prospective relief of the conditions which prevent increased domestic output, and production during 1946 is not expected to greatly surpass the 1945 total. Demand for edible milk products continues unabated and the maximum selling prices for such products have been established at levels which prevent competition for milk supplies from producers of casein.

With the termination of hostilities in Europe, new casein markets appeared and during the last four months of 1945 heavy European demand for supplies from the already depleted Argentine stock pile caused substantial price increases. As the year closes, prices quoted by Argentine casein suppliers are somewhat higher than domestic ceiling prices thereby preventing negotiation for the purchase of additional supplies for United States' importation. This condition exists despite present peak production in the Argentine and portends an extremely tight supply situation domestically during the early months of 1946.

Although official casein statistics for the past year are not yet available, various estimates indicate a total consumption of about 65,000,000 pounds. Recent procurement difficulties and price increases to ceiling levels may have slightly retarded consumption during the last two months of 1945.

The quality of domestic casein has been satisfactorily maintained by most producers through the year, despite the meager production. Recent reports on Argentine casein, however, indicate some slight quality degradation following the drastic reduction of available stocks.

Sales prices on domestic acid casein were maintained at the ceiling level of 24c per pound, carload lots, f. o. b. shipping point, throughout the entire year. During the first six months, Argentine acid casein sold at about 18c per pound, carload lots, f. o. b. port of entry and then rose steadily, reaching the ceiling level of 24c per pound during the month of November.

Alum

COMMERCIAL.

The quality of papermakers alum has been improved to the extent that it is equal to the prewar grade. This is due primarily to the availability of high grade bauxite which was unobtainable during most of the war.

The consumption of alum by the paper industry has been at a high level and has increased slightly towards the end of the year. Alum production continued at plant capacities throughout the entire year. No new uses for alum outside the paper industry have been developed to affect the supply nor have any new substitutes been suggested for it in the paper industry. There has been no change in price during the past year.

Increased paper and pulp production which is expected to take place as the pulp situation eases may cause local tight situations to develop in the coming year. No change in price or quality is expected.

IRON FREE.

The availability of high grade aluminum hydrate has made iron free alum available for the paper industry in quantities sufficient to meet all demands. The quality of iron free alum is now comparable to that of the prewar material. No change in price, quality or availability is expected during the coming year.

SODIUM ALUMINATE.

Sodium aluminate has been available in prewar qualities in ample amounts to meet the requirements of the paper industry. The consumption has increased

to prewar levels after the war time interruption in production.

There has been a slight downward tendency in price during the year. The present price, quality and availability are expected to continue during the next year.

Glue

WPB Control of animal glue was released on September 30 1945 along with practically all other WPB Controls of critical materials.

The revocation of the Order M-300, Schedule 8, is not an indication that animal glue is in free supply as reconversion needs are extremely high and current demand is greatly in excess of supply. Indications are that the short supply will exist for several months. Only small quantities of glue-making raw materials are available from foreign sources, as countries that heretofore exported raw materials and animal glue to the United States are looking to this country for supplies of both.

The manufacturers of animal glue in this country have endeavored to distribute the available glue on an equitable basis giving due recognition to the more essential requirements and have been commended for the policy they are following, both by industries they serve and existing Federal Agencies.

Unless some unforeseen relief is obtained, either through a lessening in demand or more raw materials being made available, indications are that animal glue, during 1946, will be in slightly shorter supply than it was during 1945. The tight supply situation in no way affects the quality of animal glue, in that it is to the producers advantage at all times, and under all conditions to maintain quality and uniformity. The utilization of certain raw materials from foreign sources, might result in production of animal glues of less jell value, which are, from a quality standpoint, produced as sound and good as glues produced from domestic materials. The utilization of these materials is the only means of amplifying production from domestic materials, as production of animal glue is limited, whether within the United States or the entire World, to the availability of raw materials derived from commercial cattle-kill.

The use of animal glue in the paper industry, has increased continually for the past several years, definitely indicating that the different purposes for which animal glue is used in the manufacture of paper, cannot be effectively and satisfactorily replaced with materials that may be considered as substitutes. In cases where necessity has forced the use of substitutes, manufacturers utilizing them have indicated a desire to use animal glue as soon as it is available for their use. The use of animal glue in the paper industry during the war period about parallels the peacetime use and it is believed that while the paper industry has not been able to obtain all the animal glue they would like to have, necessary requirements have been adequately met by the animal glue industry. While a short supply is expected to continue, the animal glue industry fully recognizes the essentiality of the paper industry and will take care of the animal glue requirement.

Animal glues have been under price control by the Office of Price Administration since early 1942 and because of the short supply, it is expected the controls will remain in effect for some time to come. The only allowable increased prices are based on the utilization of foreign raw materials, which the Office of Price Administration has authorized, realizing the necessity of the resulting production of animal glue from such raw materials.

Starch

The end of the war brought greatly increased demands for starch by the paper industry. This was particularly true in those mills making machine-coated papers where starch is almost universarlly used as the coating adhesive. Tub sizing has also increased appreciably. However, because of insufficient raw materials at times, transportation difficulties, labor problems and government policies, no progress has been made in meeting the demand.

Quality of starch remained standard and some was prewar. There were no new uses for starch developed during the war. Prices were at ceiling levels which, in many cases, were inadequate.

Enzymes

The trend continues toward a greater use of enzyme-converted starches for all types of starch applications in the paper industry. This, of course, includes starches for coating, sizing, and laminating adhesives. It is expected that the supply of enzymes will be ample to meet all demands. To the best of present knowledge, no price changes nor major changes in the quality of amylolytic enzymes are contemplated during 1946.

Dyestuffs

The consumption of dyes by the paper industry has increased considerably in the last quarter of 1945. The discontinuance of Order L-120 removing wartime restrictions has permitted manufacturers to revive regular lines and offer a wide range of shades. This has already resulted in a large increase in the consumption of dyes. It is expeceted that this situation will continue for quite some time.

Selling prices as of March, 1942, were maintained although in a few instances concentrations of standards were increased slightly. This in effect is a decrease in price.

Standards of quality have in general been maintained throughout the year.

No new uses have been developed during the year.

There were no substitutions other than the substitution of certain standards for others which may have been temporarily unavailable.

The huge demand for the dyes required for the coloring of military materials ceased with the end of the war. Conservation Order M-103 was rescinded and the manufacturers were confronted with the problem of disposing of stocks on hand, as well as materials in process, of the military dyes. Production schedules had to be revised to increase production of the dyes which would be required for regular commercial purposes. The reconversion is well under way. It is expected that there will be a large demand for some time to come because of the small inventories in all civilian lines.

Clay

DOMESTIC.

Throughout the greater part of the year consumption was at about the same rate as in 1944. Toward the close of the year there was a marked increase in demand and the clay supply became short.

Clay prices remained at the levels of previous years in accordance with the requirements of Maximum Price Regulation No. 327.

Despite production difficulties there was little or no decline in quality. There were no major new uses, although a notable increase in use by the paint and ink industries appeared.

There were no substitutes as far as paper coating was concerned.

For the future the tremendous increase in production of coated paper which is now beginning will result in increased clay consumption and is likely to markedly affect the relative abundance of this material.

IMPORTED.

During the war period sufficient clays were imported from England to supply the entire trade. In 1946 indications are that there will be a large percentage of increase in business on clays from England and there will be sufficient clay mined there to care for the tonnage in question. Prices are as of March, 1942, ceiling, and quality has been maintained throughout.

Zinc Sulphide Pigments

The shortage which has existed in paper fiber, and the consequent tendency to use lighter weights while maintaining opacity, as well as the trend toward the greater use of machine coated papers, has resulted in a heavy demand for zinc sulphide pigments. However, first the war, and subsequently the postwar demands from all markets served by zinc sulphide pigments have resulted in a very tight situation for technically pure zinc sulphide, Cryptone (containing approximately 50% zinc sulphide), and lithopone.

Inasmuch as it is well recognized that none of the commonly used fillers can compete in performance with the zinc sulphide pigments where a high degree of whiteness, brightness, and opacity is desired, the paper industry would be using a considerably greater tonnage of these pigments if they were now available.

Titanium Pigments

The consumption of titanium pigments by the paper industry during 1945 was governed to quite a large extent by the existence of priority ratings on orders, but it may be said that the demand by the paper industry remained far in excess of the supply.

There has been no variation in price during the year 1945, and there is not any expectation of one in 1946.

It has been possible to maintain the quality of the pigments equal to regular standards and no variations in quality in 1946 are expected.

The general uses of titanium pigments by the paper industry remain the same. Substitutes for titanium pigments in the paper industry are not known.

While the war's end has eliminated priority orders to quite a large extent, it has become increasingly evident that the available supply of titanium pigments will not meet the demand expected from civilian users in 1946, and the industry will continue to receive quite a large demand from the Navy Department for titanium pigments required in the maintenance of the existing fleets.

It is believed that titanium pigments will continue to be in short supply throughout the entire year of 1946.

Synthetic Resins

Of the various resins consumed by the paper industry during 1945, wet strength beater types of the urea- and melamine-formaldehyde class continue to represent the largest single volume usage. While practically all of the early 1945 uses for wet strength resins in the industry were basically for specialized military requirements, the experience and knowledge gained in handling such materials has carried into peacetime usage and led to wide-spread development studies and commercial adoption of wet strength treatment for numerous regular civilian items.

With the rapidly expanding market for wet strength resin types and enlarged production facilities, there has been a corresponding reduction in the base cost of both urea-formaldehyde and melamine-formaldehyde resins during the past year. General improvements in product quality, both in uniformity and performance, have resulted through the knowledge gained in the production of wet strength resin types and in the manufacture of wet strength grades. These improvements have been reflected in improved efficiency in operation and use, and have been significant factors in providing the industry with an important tool for improving the quality of all paper grades within highly feasible cost range.

Although designed primarily for wet strength treatment, urea- and melamine-formaldehyde resins are currently finding substantial usage for improving dry strength characteristics (fold, bursting strength, and tensile,) erasure properties, both wet and dry, dimensional stability, sizing efficiency, and printing surface characteristics. Rosin shortages, for example, have led to resin usage for certain grades of paper where wet strength has not been a requirement but where a higher degree of sizing and better uniformity of sizing at reduced rosin consumption have been a requisite.

With the termination of the war, there was a marked increase in wet strength resin sales to the paper industry. This was not particularly surprising since all restrictions on the usage of resins of this type were lifted and the paper manufacturers were again able to obtain these raw materials for all applications, regardless of essentiality. Fortunately, resin production facilities had been expanded manyfold during the war, and this sudden and sizable increment in the demand for urea-formaldehyde and melamine-formaldehyde did not in any way adversely affect their advailability.

The solid fiber and corrugated board industries, which throughout the war period used large quantities of urea-formaldehyde resin with starch in the production of weatherproof board, has very markedly reduced their requirements with the termination of the war. While it is still too early to see how important a factor resin fortified starch adhesives will be in the postwar era, the outstanding record of durability displayed by the weatherproof container under adverse shipping conditions should assure a peacetime market for this high strength package for beer cases, fruit and frozen food containers, vegetable boxes, etc.

In the laminating field, phenol-formaldehyde resins are still the most widely used, both for high and low pressure laminating procedures. For certain specialty applications requiring light color, urea-formaldehyde and melamine-formaldehyde resins have replaced the phenolic types in spite of their mose critical application requirements. With the end of all restrictions on resins of this class, the manufacturers of paper base laminates have returned to such items as table tops, wall paneling, plywood surfacing, etc. While a temporary reduction in the production of laminated articles resulted during the latter part of the summer

and early fall, it is anticipated that the postwar demand for such articles will be at least comparable, if not greater, than wartime volume. Resins for the laminating industry have been freely available for all uses since the middle of 1945.

Hot melt coating and laminating resins have enjoyed a continually expanding market throughout the war, and with the rapidly growing number of uses for paper in the packaging field will undoubtedly continue to gain in importance. Resin modified ethyl cellulose formulations and certain of the synthetic rubber types are in use at the present time. While the availability of the resins in the hot melt class has not improved to a degree comparable to the thermosetting types, it is anticipated that this situation will improve early in 1946. At the present time, there are no restrictions but limited availability of certain raw materials has restricted more widespread commercial usage. Hot melt resins as a class have not undergone any price reduction during the past year and it is doubtful whether any downward trend will be observed during 1946.

Wax Sizes

The outstanding feature of the consumption of wax sizes by the paper industry during the past year has been the widespread use of these materials as a supplement to the rosin size supply. When restrictions were placed on the consumption of rosin on February 28, 1945, it was only natural that the industry should look for substitutes. Wax sizes having been employed for many years in the manufacture of many grades fitted into the void very nicely in many cases. In most instances, a pound of dry content of wax emulsion permitted the reduction in the consumption of several pounds of rosin. Presumably when rosin again is plentiful, some manufacturers will curtail their consumption of wax size, but in other cases, the employment of wax sizes will doubtless be continued for quality or economic reasons.

No radically new products in this line have been brought forth during 1945, manufacturers having devoted their energies to the improvement of existing products. At least one new plant has come into production to take care of the increased demand.

Throughout the year the supplies of wax have been adequate and there has been no necessity for substitution for standard grades. However, there has been insufficient excess of supply to cause any sagging of prices below the ceiling established by the Office of Price Administration.

Plasticizers

The year 1945 saw Government restrictions gradually lifted from all plasticizers with the sole exception of invert sugar. Supplies remain generally scarce, however, and only a gradual improvement is to be expected in 1946. A summary of the situation follows:

GLYCERINE.

Stock piles are reported to be lower in 1945 than in 1944, with many consumers having difficulty in securing their full requirements. A gradual improvement is to be expected in 1846, but extension of the scrap fat salvage campaign is still essential. No important price moves took place.

INVERT SUGAR.

The current outlook is that invert sugar will remain on the ration list for most, if not all, of 1946. Industrial consumer allotments remain at 50% of base period use, although a possible increase late in the year is reported. Domestic sugar plantings increased somewhat in 1945 as a result of belated Governmental action and a similar increase took place in Cuba. Heavy December frosts in Louisiana, together with extensive world-requirements however, are such that no great improvement seems likely until 1947 crops are harvested. Manufacturers are filling orders promptly whenever supplied with the necessary ration evidence. No price changes.

CORN SUGAR AND SYRUP.

These materials are still being allocated by the producers to consumers on a basis of past performance. Most mills are now grinding on a full production schedule and meeting current orders. A considerable back log of orders exists, due to unavoidable shutdowns during the year and, to date, not much progress has been made in reducing the total amount. The situation should show an improvement in 1946.

GLYCOLS.

Reported to be in a better position than last year. All restrictions have been lifted and the producers are filling orders promptly. Prices are somewhat lower and apt to remain stable.

SORBITOL.

The supply showed improvement during 1945 and is available at once in small lots on on contract shipments. Large orders, not on contact may be delayed. New production facilities are expected to be in operation some time this summer and should ease the situation still further. Prices have remained stable, with an eventual decline predicted.

The Institute of Paper Chemistry at Appleton have commercial work on a program designed to evaluate all the better known plasticizers, as well as those materials offered under trade names without further identification. It is to be hoped that the Institute's findings will be available this year, as an impartial comparison of all available plasticizing agents could not fail to be of great interest to papermakers.

Contributors to Report

Caustic soda—R. L. Carr, Mathieson Alkali Works, New York, N. Y.
Soda ash—M. W. Phelps, Solvay Process Co., Syracuse, N. Y.
Lime—M. F. Swan, Standard Lime & Stone Co., Baltimore, Md.
Salt cake—W. F. Phillips, American Cyanamid & Chemical Corp., New York, N. Y.
Sulphur—D. B. Mason, Freeport Sulfur Co., New York, N. Y.
Sulphur dioxide—C. F. Bingham, Virginia Smelting Co., W. Norfolk, Va.
Chlorine—S. W. Jacobs, Niagara Alkali Co., New York, N. Y.
Sodium peroxide—J. S. Reichert, E. I. DuPont, Niagara Falls, N. Y.
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Titanium pigments—G. W. Corddry, Titanium Pigment Corp., New York, N. Y.
Wax sizes—R. W. Kumler, American Cyanamid & Chemical Corp., New York, N. Y.
Synthetic resins—P. B. Taft, Resinous Products & Chemical Co., Philadelphia, Pa.
Plasticizers—N. R. Pike, Nulomoline Co., New York, N. Y.

New TAPPI Members

The Technical Association of the Pulp and Paper has elected the following to membership:

T. Hall Barns, Plant Manager, Reynolds Internacional de Mexico, Mexico D.F., Mexico, a 1930 graduate of Virginia Military Insitute.

Experimental Sulphite Pulping Of Eastern White Pine*

(*Pinus strobus* L.)

By Carl O. Skoggard[1] and C. E. Libby[2]

Abstract

The adaptability of eastern white pine for the manufacture of sulphite pulp was studied with emphasis on the employment of modified pulping processes.

A preliminary series of cooks employing a wide range of conditions produced pulps of inferior quality. However, dolomitic, sodium base, and 50% dolomitic and 50% sodium base sulphite liquors having 5.69% free sulphur-dioxide yielded pulps characterized by high bursting strength, good folding endurance, low tearing resistance, and high ether solubilities (0.8%). Higher screened yields of slightly easier bleaching pulps were secured with sodium base liquor.

Pre-evacuation of the chips prior to the addition of the liquor improved penetration and resulted in decreased screenings and lower bleachabilities. Impregnation of the chips with the wetting agent, Aerosol OS, hindered, rather than aided, pulping.

The results from multistage processes involving successive sulphite treatments and one including an alkaline extraction stage were inferior to those obtained from single stage digestions. In the final stages, strong liquors and high temperatures were necessary to continue the pulping action because the liquid absorbed by the wood in one digestion diluted the liquor added to the following stage by approximately 13%.

Throughout the Northeastern and Lake States, where eastern white pine *(Pinus strobus* L*)* is an abundant and common tree species, are located the mills which form the great sulphite pulp producing industry. The mills in this region have for many years been experiencing difficulty in acquiring adequate supplies of pulpwood, particularly spruce. White pine, though readily available to these mills, has never been utilized as pulpwood to any extent because the resulting sulphite pulps have been of inferior quality. Since this species has received little attention from previous investigators, it was hoped that this study might result in information which would permit white pine to find extensive use in the sulphite industry.

Although the primary purpose of growing white pine is undoubtedly for saw timber, silviculturists have been interested also in the possibility of using white pine for pulpwood. In order to produce maximum yields of merchantable white pine timber, it is necessary to thin the stand of 20 to 30% of the less desirable trees at regular intervals. If these thinnings were to be consumed by the pulp and paper industry as pulpwood, a strong incentive for the adoption of proper stand improvement methods would be realized.

Numerous investigators *(1, 2, 3, 4, 5, 6,)* have reported on the difficulties in successfully reducing pinewood to a high grade pulp by the sulphite process. They agree generally that all the trouble is encountered in pulping the heartwood while the sapwood reduces readily. In most cases magnesium and sodium base liquors have been found more effective than calcium base liquors. The heartwood appears to offer resistance to the entrance of the basic or acidic constituents of the liquor, or it hinders the diffusion of sulphonated products out of the wood. There is no agreement as to the role that resins play in relation to the problem.

Wood Evaluation

One-half cord of eastern white pine, cut and barked on the Pack Demonstration Forest, Warrensburg, New York, in the spring of 1940, was delivered at Syracuse on November 25, 1941. The wood was racked in a standard cord and analyzed according to the TAPPI Standard T-7. The results of the analysis are presented in Table I. A comparison of the specific gravity of white pine with those of other common pulpwoods is given in Table II. It is evident that white pine compares favorably in specific gravity with eastern spruce, western hemlock, and balsam fir. The fiber dimensions of white pine are also quite similar to those of spruce and balsam fir. Comparative fiber dimensions are presented in Table III.

The results of the chemical analyses of the white pine used in this study are presented in Table IV. The following methods were used:

Cold water solubility	TAPPI Method T 1 m-41
Hot water solubility	TAPPI Method T 1 m-41
Ether solubility	TAPPI Method T 5 m-36
Alcohol-benzene solubility	TAPPI Method T 6 m-41
One per cent caustic solubility	TAPPI Method T 4 m-40
Total pentosans	U.S.F.P.L. Method No. 45*

Cross and Bevan cellulose was determined by a method in use at the New York State College of Forestry and is fully described by Studeny *(8)*.

The sulphuric acid method as described by Ritter, Seborg, and Mitchell *(9)* was employed for the determination of lignin.

The hot and cold water solubilities of white pine are evidently higher than those of the common pulpwoods. This would tend to produce lower yields in pulping. The high 1% caustic solubility may be due in part to insect and fungi decay because blue stain was noticeably present in many of the logs. The pentosan content of this white pine was remarkably low, but since pentosans are removed in the early stages

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* The furfural was precipitated as furfural malonyl thiourea by thiobarbituric acid.

of sulphite pulping, pulp yields will not be materially affected. The cellulose content of the white pine is 57.2%, which is about 2% lower than that for spruce. White pine is a highly resinous wood as indicated by the alcohol-benzene solubility of 6.01%.

Preparation of Chips

The chips used in this investigation were divided into two groups. Some of the wood was freed of knots before chipping by sawing out and discarding the sections of the logs containing a whorl of knots. The chips from these logs are referred to as "knot-free" wood throughout this report. The chips from the wood which was not freed of knots before chipping are referred to as "normal" wood.

The wood was chipped in an "Appleton" laboratory wood chipper, and the chips were screened on a power-driven vibrating screen which rejected the over-sized chips and the sawdust. To eliminate errors due to changing moisture content, all chips were weighed at one time into portions equivalent to 2500 grams moisture-free and stored in heavy paper bags.

Preparation of the Cooking Liquor

The cooking liquor was made up in carboys by bubbling sulphur-dioxide through a suspension of lime, or a solution of sodium hydroxide depending on which type of liquor was desired. The liquor was tested by the Palmrose method.

Digester Operation

The two stainless steel digesters, indirectly heated by circulating the liquor through oil heat exchangers, had a normal capacity of 18 liters of liquor and 2500 grams of wood (moisture-free). The operating temperature of the gas-heated oil was approximately 320° C. The amount of oil flowing through the heat exchanger determined the temperature of the digester which was registered by mercury thermometers.

In charging the digester, the chips were added first followed by a perforated steel plate to keep the chips from floating. The liquor was added to the digester through a bottom connection using gravity feed. When the digester was charged, the relief valves were closed and the cook was started. By careful manipulation of the valves on the oil exchangers, it was possible to follow a predetermined temperature schedule within 0.5° C.

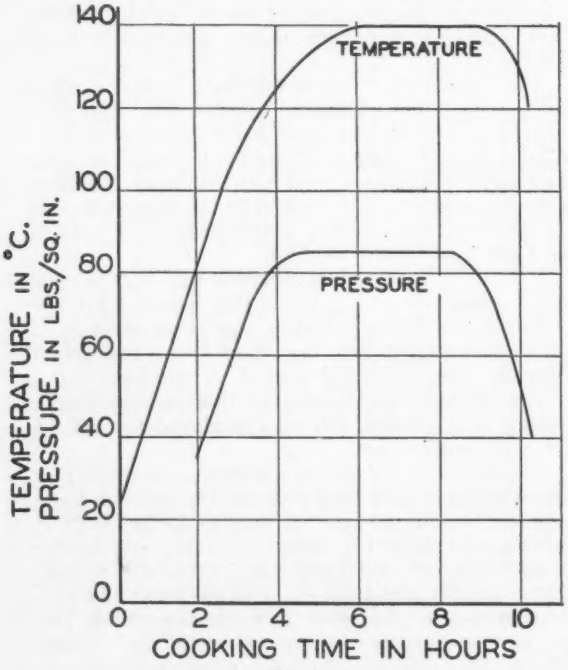

FIG. 1
Cooking Schedule—Series I—Cooks Nos. 12-21

TABLE I.—PHYSICAL EVALUATION OF EASTERN WHITE PINE *(PINUS STROBUS L.)*

Number of logs per cord	154
Weight per cord as received, lb.	2552
Average weight per log, lb.	16.6
Average length of logs, in.	48.07
Per cent excess length over 4 feet	0.15
Specific gravity as received	0.407
Specific gravity, moisture-free weight, green volume	0.323
Green wood density, lb. per cu. ft.	25.3
Dry wood density, lb. per cu. ft.	20.1
Volume of barked wood per cord, cu. ft.	100.8
Volume of solid wood per cord, %	78.8
Average age of logs, years	31.4
Moisture as received, %	20.64

At the completion of the cook, the digester was relieved to zero pressure. The liquor was drained out and the chips were washed in the digester with hot water for 30 minutes at the end of which time the effluent water was almost colorless. The digester was then emptied, and the chips were placed in a tank equipped with a high speed agitator which disintegrated the chips into pulp. After disintegration, the pulp was washed on a flat screen with hot water (70° C.) for 30 minutes. The pulp was then dehydrated in a screw press and the yield determined, after which it was screened through a 0.010-inch cut vibrating flat screen. The screenings were dried and weighed and subtracted from the unscreened yield to give the screened yield.

Physical and Chemical Evaluation of the Pulps

The physical evaluation consisted of the following tests according to the TAPPI methods:

Beater processing of paper
TAPPI Standard T 200 m-40

Forming and testing of pulp sheets
TAPPI Standard T 205 m-40

Conditioning of paper for testing
TAPPI Standard T 402 m-41

Bursting strength of paper
TAPPI Standard T 403 m-36

Tearing resistance of paper
TAPPI Standard T 414 m-40

Folding endurance of paper
TAPPI Standard T 423 m-41

The following chemical tests were made on air-dried samples of shredded pulp:

Ash in paper	TAPPI Standard T 211 m-40
Permanganate number	TAPPI Standard T 214 m-37
Ether solubility	TAPPI Standard T 204 m-35
Alpha-cellulose	TAPPI Standard T 203 m-40

Instead of using 3 gram samples and 35 and 40 ml. portions of alkali, 1 gram samples and 11.7 and 13.3 ml. portions of alkali were used.

The figures for lignin contents refer to the lignin present in the alpha cellulose residues.

Preliminary Cooks

A series of preliminary cooks were made in order to determine the most favorable range of pulping conditions. Dolomitic lime, containing 59.3% CaO and 37.9% MgO, was used as a liquor base, chiefly because the work of previous investigators indicated that magnesium sulphite liquor reduced pinewood more effectively than calcium base liquors *(1, 5, 6)*. The pulps obtained over a wide range of conditions were poor in color and shivy and produced screen-

TABLE II.—SPECIFIC GRAVITY OF WHITE PINE AND OTHER COMMON PULPWOODS (7)

Species	Approximate Specific Gravity	
White pine	0.34	0.323 *
Southern pine	0.40–0.64	
Eastern spruce	0.30–0.38	
Sitka spruce	0.37	
Western hemlock	0.38	
Balsam fir	0.34	

* Author's figure.

ings of 2.06 to 4.90%. The permanganate numbers which ranged from 14.2 to 21.4 indicated hard bleaching pulps.

Liquors with high free sulphur-dioxide contents were found to yield somewhat better results, probably because of more thorough penetration. In general, the pulps were not promising. Because of this fact, it was felt that a prolonged study of the important cooking variables would not be profitable. Instead, one schedule which seemed slightly more effective in pulping white pine was chosen for further study.

Series I—Cooks Made by Similar Schedules

In this series, all of the cooks were made with liquor of constant strength, and following identical time, temperature, and pressure schedules. The cooking schedule is graphically presented in Fig. 1. With the chief cooking variables held constant, it was possible to study the effects of different liquor bases, the influence of pre-evacuation, and influences of pretreatments on penetration.

The constant conditions for this series of cooks were as follows:

Wood	2500 grams (on moisture-free basis)
Liquor—18 liters	7.18 ± .05% total SO_2
	5.69 ± .05% free SO_2
	1.49 ± .05% combined SO_2
Maximum temperature	140° C.
Time to 110° C.	3.00 hours
Time to 140° C.	5.75 hours
Total cooking time.	10.25 hours
Maximum pressure	85 p.s.i. (gage)

The analysis of the pulps made in this series are presented in Table V.

Three cooks were made in which the liquor base was varied. Cook No. 15 was made with dolomitic liquor, 21 with sodium base liquor, and 20 with 50% dolomitic and 50% sodium base liquor.

Reference to Table V indicates that sodium base liquor reduced white pine wood more completely than the other two liquors, for the screenings of the pulp produced was the lowest. The unscreened yields for all three pulps were approximately 48%. The strength factors are compared in Fig. 2. The dolomitic-sodium base liquor produced a slightly stronger pulp. The pulp made with dolomitic liquor was noticeably weakest in bursting strength, for the burst factor was only 1.29, while the pulp produced by the mixed sulphite liquor had a burst factor of 1.41.

The bleachabilities of the pulps, as indicated by the permanganate numbers, did not vary greatly, although the liquors containing sodium base, all or in part, produced pulps having slightly lower bleachabilities. Since the permanganate numbers were between 15.8 and 17.6, all three must be considered hard bleaching pulps. The ether solubilities were high—0.61 to 0.81%.

Two cooks were made using knot-free wood. Since the knots appeared to contain a higher amount of resinous matter than the remainder of the wood, a drop in the ether solubilities was anticipated when the knot-free wood was pulped. Secondly, the screening rejects of pulp No. 13, made with dolomitic liquor, were 2.35%, which was regarded as excessive considering that the pulping was carried out in a small experimental digester. Since sulphite liquor rarely reduces knots completely to pulp, it was decided to determine to what degree knots were responsible for the screening rejects.

The pulps produced from knot-free wood differed primarily from those produced from normal wood in that the screenings were lower in the former pulps. In the cooks made with dolomitic liquor, the decrease was from 2.35 to 1.66%. In the cooks made with sodium base liquor, the decrease was from 0.65 to 0.30%. The anticipated drop in pitch content did not occur.

Information procured from the preceding work gave indications that the white pine wood was reducing unevenly under the action of sulphite liquor. Furthermore, when the chips were examined as they were removed from the digester, it was found that the sapwood appeared completely cooked but that the heartwood was darker in color and harder. The cooked heartwood chips broke up more slowly in the agitator tank and produced numerous shives. These shives broke up during the screening operation, permitting reddish fibers to pass through the screen plate with the accepted pulp. These reddish fibers did not bleach to the same whiteness as the remainder of the pulp and were, therefore, an objectionable feature of the pulp.

Previous investigators had observed that the heartwood of pines resists the action of sulphite liquor more than the sapwood *(3, 4, 6)*. As has been stated before, indications were present in this study of white pine which supported the observation made by the investigators previously cited. The difficulty in pulping the heartwood was attributed to one or both of the following possibilities. Either the sapwood was attacked with greater vigor than the heartwood in the presence of equal concentration of pulping chemical, or there were greater concentrations of chemical present in the sapwood than in the heartwood. Beazley et al *(10)*, as well as others, have reported that the rate of liquid flow through sapwood is much greater than through the heartwood. This lends support to the theory that the concentration of active chemical differs in the heartwood and sapwood. Attempts were made therefore, to improve penetration.

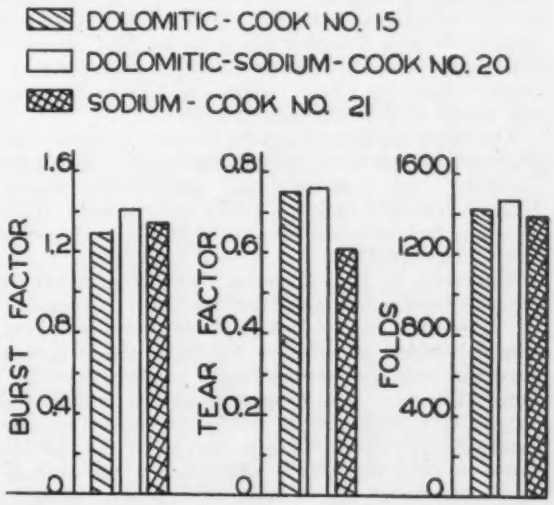

FIG. 2
Effect of Liquor Base on Strength Properties

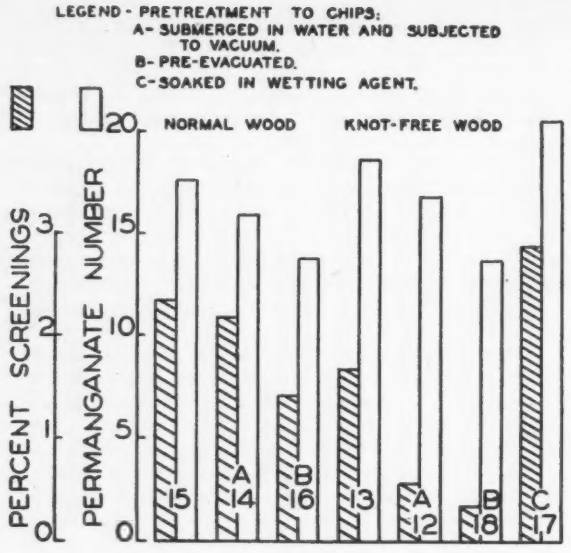

FIG. 3
Effect of Pretreatments to Aid Penetration on Screenings and Permanganate Numbers

Since the knots in the wood were producing part of the screenings, it was felt that the effects of improved liquor penetration could be evaluated best by pulping knot-free wood. For comparative purposes, duplicate cooks were made with normal wood.

De Montigny and Maass *(11)* have reported that the presence of two phases in the capillaries of the wood greatly hinders the rate of natural penetration. With this in mind, cooks Nos. 14 (normal wood) and 12 (knot-free wood) were made in which the chips were submerged in water and then subjected to a vacuum of 20 inches of mercury over a period of 18 hours before pulping. In this manner the air in the capillaries was removed and displaced by water. The mode of entrance of the sulphite liquor into the chips filled with water was entirely diffusion.

To study penetration further, chips in an air dry condition were subjected to a vacuum of 20 inches of mercury for 18 hours. The cooking liquor was added directly to the evacuated digester. Since a differential pressure head existed, the wood was at least partly impregnated by forced penetration. To evaluate the effectiveness of the pretreatment two cooks were made with dolomitic liquor, cooks Nos. 16 (normal wood) and 18 (knot-free wood), and two were made with sodium base liquor, cooks Nos. 21 (normal wood) and 19 (knot-free wood).

The effect of wetting agents on penetration in sulphite pulping has been investigated by McGovern and Chidester *(12)* who reported unfavorable results. Nevertheless, one cook (No. 17) was made in which the chips had been soaked for 24 hours in 1% solution of Aerosol OS.

Reference to Fig. 3 shows that pretreatment A (chips submerged in water and subjected to vacuum) and pretreatment B (air dry chips subjected to vacuum) aided penetration for both the per cent screenings and the permanganate numbers were reduced. The other pulp properties were essentially the same. This supports a conclusion made by De Montigny and Maass *(11)* to the effect that no increase in pulp strength is secured with pre-evacuation unless advantage is taken of improved penetration by shortening the cooking time.

The wood which was pre-evacuated in the air dry condition (cooks Nos. 16 and 18) produced pulp having lower screening rejects and permanganate numbers than the wood which was subjected to vacuum under water. In the latter case, where the chips were filled with water, dilution of the cooking liquor by the absorbed water undoubtedly occurred. Even though the cooking liquor used in cooks Nos. 14 and 12 was weakened by dilution, the pulps were superior in respect to screenings and permanganate numbers to those produced by cooks Nos. 15 and 13 in which no pre-evacuations were used.

The wetting agent Aerosol OS, employed in pretreating the wood used in cook No. 17, produced pulp of the lowest quality manufactured in the entire series. No doubt the poor results may be attributed partially to the liquor dilution by absorbed water, but the beneficial influence, if any, of the wetting agent was not sufficiently strong to counteract the deleterious effect of the weakened liquor.

Series II—Multistage Pulping

A series of cooks was made in which the wood received more than one digestive treatment in the digester proper. Whether or not a process involving successive digestive treatments is economically feasible is a question which can only be answered by the results obtained. If a multistage process is capable of producing a pulp greatly superior to that produced by a single stage process, the added cost of manufacture may be nullified.

That the possibilities of multistage pulping frequently have been considered is evidenced by the abundance of patent literature available. As far back as 1921, Possanner *(13)* published a review on new methods of digestion of wood. The methods mentioned are varied, including successive alkali and acid stages, the use of organic solvents followed by an alkaline digestion, and chlorination treatments alternated with alkaline digestions.

The general claim put forth by the originators of the processes is that superior pulps are produced. In some cases, the process is particularly suited to resinous woods, in which case the first stage is usually alkaline.

Since resins are saponified by alkalis, it appeared logical that a caustic extraction in conjunction with one or more sulphite stages would reduce the pitch content of the resulting pulp. In cook No. 22, the first sulphite stage was used to open up the wood and to remove the major fraction of the noncellulosic materials. This stage was followed by an extraction with 1% caustic and 0.1% tri-sodium phosphate solution. To complete the delignification, the caustic extraction was followed by a second sulphite stage. Complete details on the pulping conditions are presented in Table VI, and the cooking schedules are shown in Fig. 4.

Cook No. 23 was made with liquors of the same strengths as those used in the preceding cook and

TABLE III.—COMPARISON OF WHITE PINE (*PINUS STROBUS*) FIBERS WITH THOSE OF COMMON PULPWOODS *

Species	Average Fiber Length, mm.	Average Fiber Width, mm.
White pine (*Pinus strobus*)	3.62	0.030
Southern pine (*Pinus palustris*)	4.90	0.039
(*Pinus echinata*)	4.65	0.039
(*Pinus taeda*)	4.33	....
Jack pine (*Pinus banksiana*)	2.85	....
Western hemlock (*Tsuga heterophylla*)	2.96	0.031
Balsam fir (*Abies balsamea*)	3.41	0.031
White spruce (*Picea glauca*)	3.31	....
Black spruce (*Picea mariana*)	3.42	....
Red spruce (*Picea rubra*)	3.09	0.031
Sitka spruce (*Picea sitchensis*)	5.30	0.040

* Figures in this table are presented through the courtesy of Dr. C. C. Forsaith, Department of Wood Technology, New York State College of Forestry.

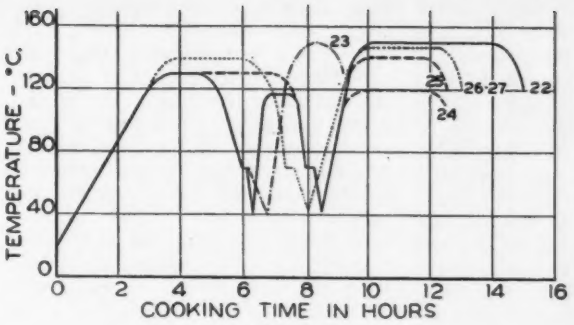

FIG. 4

Cooking Schedules—Series II—Multistage Cooks Nos. 22-27

also employing the same pulping schedule in the first stage. The alkaline extraction, however, was omitted and the cooking time of the final sulphite stage was shortened from 6 to 2.5 hours.

The pulp produced by the two-stage cook (No. 23) was much superior in quality to that produced by the three-stage cook (No. 22). The latter process resulted in a raw, hard bleaching, and physically weak pulp. The pulp produced by the two-stage process had physical and chemical properties similar to those of pulp No. 15 (single stage—dolomitic liquor).

Since the cook which included the alkaline stage produced a more raw pulp than the two-stage cook, even though the latter cooking time was 3.5 hours shorter, it must be concluded that the alkaline stage inhibited the sulphite pulping action. The wood undoubtedly absorbed alkali which was not removed in the washing operation following the extraction. This absorbed alkali must have partly neutralized the sulphite liquor added in the last stage so that little pulping action occurred in the final digestion.

The results of one cook are too limited to afford a sound basis for general conclusions. Under the conditions of this experiment, the alkaline stage was detrimental. The ether solubility of the resulting pulp was not materially reduced. If further work should be undertaken, the following point should be kept in mind. The caustic of the alkaline stage must be sufficiently strong to more than counteract the neutralizing effects of the acids absorbed by the wood in the preceding acid sulphite digestion. If a sulphite stage follows the alkaline treatment, the liquor should be very strong and highly acidic, so that the resulting dilution by the absorbed water and the neutralization by absorbed alkali will not reduce the activity of the liquor to the point of impotency.

TABLE IV.—SUMMARY OF CHEMICAL EVALUATION OF WHITE PINE

Determination	Per Cent Based on Moisture-free Weight of Wood
Cold water solubility	3.47
Hot water solubility	5.42
Alcohol-benzene solubility	6.01
Ether solubility	2.65
One per cent caustic solubility	15.9
Lignin	26.7
Pentosans	7.84
Cross and Bevan cellulose	57.2
Ash	0.19

Cooks Nos. 24 and 25 were made with sodium base liquor in two-stage digestions. The cooking schedules were the same except for the maximum temperatures in the last stages. In cook No. 24 the temperature was 120° C., and in cook No. 25 it was 140° C. The results of the pulp analyses are summarized in Table VI.

The resulting pulps possessed similar strength properties. Both pulps were raw. The fact that 20° difference in the temperature of the final stages did not have any large effect on the pulp properties indicated that some variable other than temperature exerted a predominating influence on the course of the reaction. The liquor tests, which are given in Table VI, show that the controlling variable in the last stage was the liquor concentration. When the medium strength liquor (4.70% total SO_2) was added in the second stage, the retained water in the chips caused approximately a 13% decrease in liquor strength. After a digestion of 7.75 hours, the liquor strength had decreased an additional 1.5%. The absence of pulping action clearly indicated that the conditions of the final stage were not sufficiently severe to cause further delignification.

Cooks Nos. 26 (calcium base liquor) and 27 (dolomitic liquor) were made to compare the effectiveness of the two types of liquors. Other considerations were to employ high temperatures and strong liquors in the final stage in order to continue the delignifica-

TABLE V.—PULPING CONDITIONS AND PULP ANALYSES OF COOKS MADE IN SERIES I—NOS. 12-21

Cook No.	Liquor Base	Condition of Wood	Pretreatment	Screen Yield %	Strength Factors: Screenings, %	Strength Factors: At 100 C. S. Freeness: Burst Factor	Tear Factor	Double Folds	$KMnO_4$ Number	Ether Solubility	Ash, %	Alpha Content, %	Lignin,* %
15	Ca-Mg	Normal	None	45.8	2.35	1.29	0.75	1420	17.6	0.61	0.57	84.9	0.97
21	Sodium	Normal	None	47.3	0.65	1.34	0.61	1390	16.7	0.81	0.51	83.3	1.07
20	Sodium 50% Ca-Mg 50%	Normal	None	46.4	1.44	1.41	0.76	1470	15.8	0.81	0.47	83.4	0.78
13	Ca-Mg	Knot-free	None	46.7	1.66	1.36	0.70	1180	18.6	0.86	0.55	83.2	1.30
19	Sodium	Knot-free	None	48.5	0.30	1.42	0.63	1360	14.2	0.80	0.48	84.4	6.66
14	Ca-Mg	Normal	Chips subjected to 20 inches of vacuum under water for 18 hours at room temp.	44.6	2.17	1.31	0.73	1440	15.9	0.81	0.48	84.1	0.81
12	Ca-Mg	Knot-free		48.1	0.57	1.24	0.70	1480	16.8	0.98	0.51	84.8	0.97
16	Ca-Mg	Normal	Chips in air dry condition subjected to vacuum. Liquor added directly to evacuated digester	45.3	1.41	1.21	0.59	980	13.8	0.90	0.48	84.4	1.10
18	Ca-Mg	Knot-free		46.7	0.35	1.31	0.61	1470	13.7	0.87	0.48	84.8	0.60
17	Ca-Mg	Normal	Chips soaked in 1% Aerosol OS for 24 hours. Digester drained and liquor added	47.7	2.87	1.30	0.68	1560	20.5	1.12	0.63	82.6	1.51

* Lignin determination made on the alpha-cellulose residue.

Constant conditions for all cooks:
Wood—2500 grams moisture-free.
Liquor—18 liters.
Cooking time—10.25 hours.
Max. temperature—140° C.
Maximum pressure—85 p.s.i. (gage).
Liquor strength—7.18±.05% Total SO_2; 5.69±.05% Free SO_2; 1.49±.05% Combined SO_2.

TABLE VI.—PULPING CONDITIONS OF MULTISTAGE COOKS AND RESULTING PULP PROPERTIES—SERIES II—COOKS NOS. 22-27

Cook No.	Stage	Cooking Liquor: Liquor Base	Cooking Liquor: To Digester: Total—Free—Comb. % SO_2	Cooking Liquor: In Digester: Total—Free—Comb. % SO_2	Cooking Liquor: At Completion: Total—Free—Comb. % SO_2	Time, hours	Max. Temp., ° C.	Pressure, p.s.i. G.	Pulp Evaluation: Screened Yield, %	Screenings, %	Strength Factors at 100 (C.S.) Freeness: Burst	Tear	Fold	$KMnO_4$ Numbers	Ether Solubility, %	Ash, %	Alpha-Cellulose, %	Lignin in Alpha Residue, %
22	First	Ca-Mg	5.40—4.00—1.40		3.66—2.78—0.88	5.5	130	75	41.1	5.58	1.08	0.69	1100	21.6	0.75	0.79	84.4	3.12
	Second		1% NaOH 0.1% $NaPO_4$			1	117											
	Third	Ca-Mg	3.94—2.78—1.16		2.14—1.32—0.82	6	150	85										
23	First	Ca-Mg	5.40—4.00—1.40		3.72—2.88—0.84	5.5	130	75	45.0	2.52	1.24	0.76	1480	14.4	1.16	0.57	84.8	0.83
	Second	Ca-Mg	3.88—2.82—1.06		2.17—1.30—0.87	2.5	150	85										
24	First	Na	8.90—7.88—1.02		3.54—3.36—0.16	7.75	130	85	50.7	2.60	1.27	0.61	1400	23.4	1.00	0.99	81.0	3.31
	Second	Na	4.68—2.73—1.95	3.03—1.74—1.29	2.99—1.72—1.27	4	130	40										
25	First	Na	8.78—7.84—0.94		3.76—3.43—0.33	7.75	130	85	48.8	1.97	1.16	0.64	1615	22.2	0.90	0.69	82.4	1.88
	Second	Na	4.80—2.82—1.98	3.17—1.84—1.33	3.05—1.77—1.28	4	140	64										
26	First	Ca	5.63—4.40—1.23		2.60—2.07—0.53	7	140	85	43.6	2.45	1.22	0.80	1460	12.6	1.21	0.53	85.4	1.02
	Second	Ca	6.85—5.63—1.22	4.54—3.66—0.88	2.82—2.20—0.62	5	147	95										
27	First	Ca-Mg	5.58—4.32—1.26		2.60—2.04—0.56	7	140	85	42.9	2.06	1.19	0.74	1720	10.3	0.95	0.44	86.3	0.86
	Second	Ca-Mg	6.80—5.55—1.25	4.15—3.24—0.91	2.86—2.16—0.70	5	147	95										

tion process. The cooking temperature in the final stage was 147°C. and the liquor contained 6.80% total SO_2.

With a high temperature of 147°C., combined with the strong liquor, considerable cooking action occurred in the final stage, as was evidenced by the decrease in free and combined sulphur-dioxide. The resulting yields of pulp, 43.6% for cook No. 26, and 42.9% for cook No. 27, were very low. Bursting strengths were comparable to those obtained in the other multistage cooks, but lower than those obtained by the single-stage processes. The greatest change was secured in the permanganate numbers which dropped approximately to one-half of the previous values of the multistage series. The permanganate number of calcium sulphite liquor cook was 12.6 and for the dolomitic cook, 10.3. Moderately easy bleaching pulps were thus obtained but with a considerable sacrifice of yield.

The last two pulps were evidently well cooked, and yet the ether solubilities were high. The dolomitic liquor produced a pulp slightly superior in folding endurance, alpha-cellulose content, and bleachability.

Summary of Results and Conclusions

The white pine sulphite pulps produced in the single-stage digestions were inferior in many respects to first grade commercial sulphite pulps. The most objectionable features of the white pine pulps were the high bleach requirements, excessive pitch contents, and low tearing strengths. The bursting strengths were excellent, as were the yields of screened pulp.

Since the pulp produced by the dolomitic liquor and sodium base liquor had practically the same physical and chemical characteristics, the use of the higher priced sodium base sulphite liquor on a commercial scale is economically unsound.

In pulping knot-free wood, the only advantage obtained was the reduced percentage of screenings. Since the gain in screened yield is more than offset by the loss in wood incurred in the cleaning operation, this practice cannot be recommended.

Although pre-evacuation of the chips prior to the addition of the sulphite liquor improves penetration, and results in decreased screenings and lower bleach requirements, no gain in pulp strength is secured unless advantage is taken of improved penetration by reducing the cooking time.

The pulps produced by the multistage processes employed in this study were generally inferior in quality to those produced by single-stage digestions. In multistage pulping, where alternate alkaline and acid stages are employed, chemicals absorbed in one stage will tend to neutralize the cooking agent in the successive stage. It was observed that liquid absorbed in one digestion or washing stage would dilute the liquor added to the following stage by approximately 13%.

Although the work on multistage pulping was only exploratory in nature, and very limited in scope, the disadvantages and difficulties of such a process, rather than the advantages, became evident. In successive high temperature digestions, the heavy steam consumption would be a considerable factor. A second problem involves the difficulty of removing spent liquor and reaction products from the partially cooked wood while it is still in chip form. A long soaking period would obviously be necessary to accomplish this removal. It appears evident that to justify the expense of employing a multistage process, the resulting pulp must have some unusually valuable properties, unobtainable by a single-stage digestion and subsequent pulp treatments.

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Southern Trade to Meet September 20 at Biloxi

The annual meeting of the Southern Paper Trade Association will be held September 20 and 21, 1946, at Biloxi, Mississippi. Headquarters will be at the Buena Vista Hotel. The Association invites both executives and sales representatives of the paper mills, and paper merchants in its territory who are not members, to attend the meeting, which it believes will be of unique interest.

Strathmore No. 1 Mill Celebrates Safety

SPRINGFIELD, Mass.—Employes and management of Strathmore Paper Company's No. 1 mill, Woronoco, celebrated their unusual safety record at a clambake at Riverside park Sunday afternoon. The record established by this mill has been termed the most outstanding safety record turned in by any paper mill in the United States and Canada by the committee which awarded this mill the Edward Benton Fitz trophy several years ago. The mill completed this year its ninth consecutive accident-free year.

The No. 1 mill, Woronoco, is one of the four Strathmore mills, two of which are located in West Springfield and two in Woronoco in the town of Russell. All four of the mills have been entered in the national safety contest for many years for class D mills and the Woronoco mills in particular have produced an enviable record.

The No. 1 mill has been cited many times in the last few years for the effort put forward to maintain its record. Lawrence W. Shattuck, superintendent, in commenting on the safety program stated that the individual and group initiative and enthusiasm shown by the mill employes and the cooperation of Tekoa Local No. 197 of the International Brotherhood of Papermakers had been the main factors in maintaining the outstanding record.

Approximately 125 persons attended the clambake, including directors of Strathmore, Premoid Products and Agawam Chemical company of West Springfield, Old Colony Envelope company of Westfield and representatives of the Liberty Mutual Insurance Company, the Hampden County Safety Council, the Safety Engineers Round Table of Westfield and representatives of Rising Paper company of Housatonic.

Paper Shortage Threatens Envelope Operations

SPRINGFIELD, MASS.—The paper supply is worse now than it was during the war, President Eldon V. Johnson of the United States Envelope Co. said today. He denied a report that the shortage will bring a labor cut. Questioned about an unofficial report that the paper situation was such that the plant could not meet orders and might have to shut down some machines, he said that "paper is tight but we are running at full production."

"We are now experiencing the worst quarter," Johnson said. He added that the concern will probably weather difficulties without shutting down any machinery or laying off any labor. The shortages are labeled the continuation of wartime paper curtailments which have forced printers and those using paper products to maneuver their orders to get the greatest production in the best way possible.

Now you can get
Better - Quicker
CYLINDER MOULD SERVICE

Our capacity for servicing cylinder moulds has tripled through plant expansion and the acquisition of such modern equipment as the large boring mill shown above finishing a 42-inch diameter KA2SMO (Type 316 stainless steel) end spider. We are now in a position to give you prompt, expert work on cylinders of any size or any material.

For either reconditioning old cylinders or making new ones, you can rely on Cheney Bigelow. Phone or write and we will be glad to have a representative call and discuss your cylinder problems.

CHENEY BIGELOW

Fourdrinier Wires • • Dandys • • Cylinders • • Wire Cloth
Pulp and Paper Mill Equipment

CHENEY BIGELOW WIRE WORKS • 417 LIBERTY STREET • SPRINGFIELD, MASS.

Paper and Paper Stock Imports At New York and Other Ports

NEW YORK IMPORTS

WEEK ENDING JULY 20, 1946

SUMMARY

Newsprint	9,209 rolls
Tracing Cloth	29 cs.
Decalcomanias	1 cs.
Tissue Paper	10 cs.
Writing Paper	2 cs.
Miscellaneous Paper	4 cs.

NEWSPRINT

H. G. Craig Co., Inc., G.D.D., Donnacona, Que., 355 rolls.

International Paper Co., International No. 1, Gatimeau, Que., 310 rolls.

H. G. Craig Co., Inc., A.C.D., Donnacona, Que., 394 rolls.

News Syndicate Co., Colabee, Baie Comeau, Que., 7378 rolls.

H. G. Craig Co., Inc., Kermic, Donacona, Que., 400 rolls.

H. G. Craig Co., Inc., G.T.D., Donnacona, 372 rolls.

TRACING CLOTH

E. Dietzgen & Co., Sibley Park, Liverpool, 29 cs. (bleached cotton).

DECALCOMANIAS

(———), Sibley Park, Liverpool, 1 cs.

TISSUE PAPER

F. C. Strype, Sibley Park, Liverpool, 10 cs.

WRITING PAPER

(———), Oregon, Havre, 2 cs.

MISCELLANEOUS PAPER

Gimbel Bros., Oregon, Havre, 2 cs.

Schumacher Co., Oregon, Havre, 2 cs.

RAGS, BAGGINGS, ETC.

D. Benedetto, Inc., Cinch Knot, Havana, 27 bls. paperstock.

Swiss Bank Corp., George Whyte, Vera Cruz, 164 bls. woolen rags.

Webstre & Atlas National Bank of Boston, George Whyte, Vera Cruz, 110 bls. cotton waste.

Tradesmans National Bank Trust Co., American Merchants, Glasgow, 805 bls. old webbing (Paperstock).

(———), American Merchant, Glasgow, 47 bls. jute waste.

E. J. Keller Co., Inc., American Merchant, Glasgow, 123 bls. bagging; 68 bls. line waste.

Castle & Overton, Inc., Nachman Syrkin, Antwerp, 20 bls. rags.

Chase National Bank, Sibley Park, Liverpool, 20 bls. new woolen rags.

(———), Sibley Park, Liverpool, 157 bls. new woolen rags; 23 bls. woolen thread waste; 3 bls. old woolen rags.

Felix Lautz, Randa, Huacho, 35 bls. cotton waste.

Royal Manufacturing Co., Fort McPherson, Santos, 103 bls. cotton thread waste; 82 bls. cotton fly waste.

American Cotton Products Co., Whittier Victory, Santos, 144 bls. cotton waste.

Lush Cotton Products Co., Whittier Victory, Santos, 338 bls. cotton picker waste.

New England Waste Co., Whittier Victory, Santos, 156 bls. cotton waste pickers.

American Cotton Products Co., Whittier Victory, Rio de Janiero, 207 bls. cotton waste.

Harmon G. Lichtenstein Co., Elysia, Glasgow, 45 bls. rags.

(———), Elysia, Glasgow, 44 bls. mixed dungarees (paper stock).

Continental Bank Trust Co., Elysia, Glasgow, 76 bls. old army overalls (paperstock).

Cecil Kufz, Rio Branco, Pernambuco, 519 bls. cotton wastepickers.

Chase National Bank, Crystal Park, Melbourne, 36 bls. woolen waste and rags.

Castle & Overton, Inc., Webb Miller, Alexandria, 129 bls. colored cottons; 81 bls. cotton rags.

Textile & Paper Supply Corp., Webb Miller, Alexandria, 60 bls. cotton waste.

Amtorg Trading Corp., Vilnus, Leningrad, 4740 bls. cotton waste.

GLUESTOCK, ETC.

J. Gorvers, Cinch Knot, Havana, 163 bls. dry gluestock.

(———), Cinch Knot, Havana, 65 bls. dry gluestock.

J. Gorvers, Whittier Victory, Rio de Janiero, 210 bls. gluestock.

(———), Cape Ducato, Barranquilla, 120 bdls. dry hide cuttings.

CASEIN

New York Trust Co., Mormactern, Buenos Aires, 1000 bags (ground lactic), 50,000 ks.

(———), Fort McPherson, Buenos, Aires, 2000 bags (ground lactic).

B. C. Safety Group Meets At Pacific Mills Plant

OCEAN FALLS, B. C.—Pacific Mills Limited, played host recently to the second conference of the British Columbia Pulp and Paper Industry Safety Association. The Association which is mainly composed of the safety supervisors of the major pulp and paper companies in B. C. was formed in February of this year for the purpose of discussing mutual problems in accident prevention work in the industry. The Association has developed the exchange of ideas and methods which have led to the reduction of accidents in the various mills.

Delegates to the conference were L. Kelly, D. Richards and E. Tucker of the B. C. Pulp and Paper Company, S. Slade of the Powell River Company, M. Plant of Sorg Pulp Company, L. Pumphreys of Westminster Paper Co., C. J. Hague, A. Condon and M. G. MacKenzie of Pacific Mills Limited.

Italian Paper Mills To Mark Time

WASHINGTON—Italian paper manufacturers do not expect to greatly increase their output this year, according to information they have furnished American officials in that country. Italian paper production normally amounts to approximately 450,000 tons annually, of which 50 percent is wrapping paper, 15 percent printing, and 35 percent white and colored paper. Output in 1944-45 was 112,000 tons. Daily production up to May was about 400 tons, it is stated, and is immediately absorbed by domestic requirements. Prices have risen 30 times the 1940 level, it is stated.

The Germans left the country's paper production equipment virtually intact. There are 387 paper manufacturers in Italy, ten of which are rather important, and located in northern Italy. The majority of the producers are small family groups, however.

Raw materials are the big obstacle, it is added. Paper imports are negligible. Materials formerly came from Sweden, Austria, Germany, Switzerland and Canada. Some woodpulp imports have been arranged for with Sweden, totaling 15,000 tons, of which 300 tons were to be shipped the first half of this year. It is now hoped that allotments of raw materials will be on a larger scale than last year.

New Sales Group to Import Finnish Newsprint

NEW YORK—Madden, Reeve Angel & Company has been formed to act as the sole agent of the Finnish Paper Mills Association for the sale of all Finnish newsprint in the United States.

Ernest Child, president of H. Reeve Angel and Co., Inc., is chairman of the board; John D. Coffin, president of the Jay Madden Corporation, is president; L. C. F. Rain, vice-president of H. Reeve Angel & Co., Inc., and Frank M. Jepson, vice-president of the Jay Madden Corporation, are vice-presidents; James H. Madden, vice-president of the Jay Madden Corporation, is treasurer; and Carl-Eric Flander of the Jay Madden Corporation, secretary. The board of directors will consist of Eric Fernstrom, president of the Fernstrom Paper Company, Pomona, Cal., and Messrs. Child, Coffin, Jepson, Rain, Madden and Flander. Pending location, the address of the corporation will be 30 Rockefeller Plaza, New York 20, N. Y.

The formation of this new corporation to handle newsprint will in no way affect the established business of the Jay Madden Corporation, which will continue to act as the exclusive sales agent in the United States for Finnish Paper Mills Association kraft and specialty papers, the Finnish Board Mills Association, and Tervakoski O/Y, or of M. Reeve Angel & Company, Inc., whose specialties are filter and drawing papers.

Fire Wipes Out The Keuka Mill

PENN YAN, N. Y.—Fire destroyed the Keuka Mills on Keuka Outlet last week causing damage estimated by firemen at $75,000. The plant, formerly known as the Fox mills, manufactured corrugated paper for boxes and in recent years has been owned by the Keuka Paper Corporation of Niagara Falls. Hamilton Turner is superintendent of the plant.

Valuable machinery was lost in the main building while the baled straw stockpile also was consumed. Firemen saved a storage room and spare machinery parts and baled paper stored inside.

A boxcar on the New York Central Railroad siding containing stored paper also burned and a section of another car also caught fire.

Smith Paper Combs Berkshire In Hunt for Flax Storage Space

LEE, Mass.—Smith Paper, Incorporated, has been combing Berkshire county for storage space for flax used in the manufacture of its paper. The concern has been forced to give up much of its storage space recently because of new businesses opening up and old businesses expanding. The aid of many real estate men has been petitioned to locate garages, barns and any large structures for storage purposes.

Certain requirements to comply with insurance regulations and storage requirements must be met. The storage building must be within a certain distance of a hydrant, and must be able to accommodate 10 car loads of flax, which requires about 10,000 cubic feet of space. In an effort to remedy the present lack of storage space, Smith Paper, Inc. has started outdoor storage in areas near the mills.

Wisconsin Holds Up Tax Reimbursement

MADISON, Wis.—A county board of supervisors cannot appropriate money to reimburse townships for deductions made by the Wisconsin Conservation Commission under the state forest crop law, according to Attorney General John Martin, who issued an opinion to that effect last week to Douglas County.

Four townships of the county had sold 32,000 acres of forest land to the Mosinee Paper Company, Mosinee, Wis. The Conservation commission deducted $12,000 from the share of the townships' forest crop tax because of the sale to private interests. The county board then appropriated 80 percent of this fund to reimburse the townships for the loss. Mr. Martin held that a county does not have the power to appropriate money to make up a deficit in another subdivision of government.

Ontario to Curtail Wrappings In Favor of Multi-Wall Bags

NIAGARA FALLS, Ont. — The Prices Board announced that production of wrapping paper, shopping bags and brown envelopes will be curtailed in an effort to prevent a bottleneck which is looming in Canada's food and construction programs due to a shortage of multi-wall paper bags.

Additional relief for multi-wall paper bag manufacturers, who have been unable to meet the extraordinary demand, would be provided by a reduction in the quantity of kraft paper which may be exported. Multi-wall bags are being used extensively in the packaging of foodstuffs.

Marathon County OK's Road Abandonment

WAUSAU, Wis.—Abandonment of those parts of county roads in southern Marathon county which would be affected by the construction of the proposed Dancy reservoir in the Little Eau Pleine river was favored, 39 to 24, by the Marathon county board of supervisors at a special meeting July 9.

The board acted on recommendation of a special joint committee. Its decision means that the roads will be returned to the townships in which they are located, with which the Wisconsin Valley Improvement Company, which proposed to build the reservoir, will have to deal.

Week's Record of Trends In The Pulp and Paper Market

Office of the PAPER TRADE JOURNAL,
Wednesday, July 24, 1946.

Over-all paper and paperboard production continues at high levels. Production of pulp, paper and board in May maintained the high level previously set in March and April. Total production reaching 1,620,157 tons, which is less than 9,000 tons under the April record, according to the Bureau of the Census. May receipts of pulpwood were 1,341,704 cords, a decline of approximately 91,000 cords from the April figure. Sharpest decline occurred in the South, where 574,236 cords were received, as compared with 727,183 cords in April. Pulpwood consumption increased with the result that a decline in national inventories of some 182,000 cords took place during the month.

May receipts of fibrous materials other than pulpwood were 36,000 tons lower than April. Receipts of waste paper were some 16,000 tons lower during the month, although inventories were satisfactory. Domestic production of wood pulp was 904,354 tons in May, about 3,000 tons under April. Wood pulp consumption in paper and paperboard manufacture at 1,030,505 tons was lower by 15,000 tons. Still consumption was high enough to result in withdrawals of 63,000 tons from inventories at paper and board mills, mainly from purchased imported wood pulp. Paper and board mill inventories of wood pulp were 458,601 at the end of May, the highest May figure since 1943.

Despite the comparative steadiness in finished paper products' prices since the expiration of OPA, there are growing indications that some increases in prices will occur in the not too distant future. Trade quarters point to the recent rise of Canadian newsprint and pulp prices to compensate for the loss in premium on the revaluation of the Canadian dollar, and strongly feel the possibility that prices of other Canadian raw material and finished paper products sold in the United States may be raised before long. Swedish pulp exporters may also be expected to set prices at higher levels now that the Swedish krona has been revalued along the pattern of Canada's action.

While manufacturers' and distributors' prices for pulp and paper have held firm for the most part, there are indications of increasing pressures for rises in prices, even if only for purposes of adjustment between various grades. Steady increases in operating costs have been advanced as the primary factors necessitating such price increases, and trade quarters hint that fine paper prices will be the first to rise as a result of this situation.

The index of general business activity for the week ended July 13 rose to 131.6 from 123.3 in the previous week, compared with 136.7 for the corresponding week in 1945. The index of paperboard production rose to 156.1 from 145.8 in the previous week, compared with 160.9 for the corresponding week in 1945.

Paper production for the week ended July 13 was estimated at 95.2 per cent, compared with 61.1 for the preceding week, with 88.5 for the corresponding week in 1945, with 87.7 for 1944, with 90.2 for 1943, and with 86.5 per cent for the corresponding week in 1942.

Paperboard production for the week ended July 13 was 87.0 per cent of capacity, compared with 70.0 per cent for the preceding week, with 90.0 for the corresponding week in 1945, with 91.0 for 1944, with 91.0 for 1943, and with 71.0 per cent for the corresponding week in 1942.

Wood Pulp

American mills which up until June 30 were receiving a subsidy from the government, because of their high costs, have added the amount of the subsidy, which has ranged as high as $12 per ton, to the delivered price. Some mills have delayed announcing their policy pending fuller knowledge of what the future holds in the matter of price control and subsidies in general.

Due to the 10 per cent rise in Canadian exchange in terms of the United States dollar, Canadian shippers have announced that they must secure this additional amount from their American customers, otherwise it would be equivalent to a 10 per cent reduction in price on their current shipments here.

Rags

Mills are awaiting action on the status of OPA before purchasing new white cuttings now offered at over ceiling prices. Most mills have not increased prices of paper and are not anxious to encourage an increase in their costs. Upgrading continues unabated, however, particularly for colored grades such as fancy shirt cuttings. Classification stock at $29 and $31 per ton continues a 3 to 1 ratio with heavy wipers at $50 per ton. Foreign roofing rags at 4c per pound ex-dock are ignored; some buyers offer 3½c or $70 per ton ex-dock.

Old Rope and Bagging

Mills are refusing to make any commitments beyond the MPR 47 levels either on foreign or domestic rope as they seem to be receiving enough rope for current operations. Jute strings are steady at 5 to 5.50c for soft and 4c or less for hard jute. Mixed strings remain at 1½c per pound.

Paper makers are reserved in their buying of scrap bagging and dealers find it hard to transact business at the $4.50 level. Eastern shredders are quoting $4 delivered. Southern mixed bagging is hard to purchase at $3.75.

Waste Paper

Mixed, news and corrugated still bring ceiling prices. Exceptions are rare, but mills are making regular $2 debits on certain grades, notably on corrugated, sometimes on mixed paper. Folded news and book stock are below ceilings; while high grade kraft, soft and hard shavings, and envelope cuttings tend to go above ceilings. Meanwhile, most mills are trying to hold levels steady.

Casein Production Again Doubled in May

WASHINGTON, D. C.—For the second successive month, dry casein production in the U. S. during May was double that of the preceding month, the Bureau of Agricultural Economics reports. The May production was 3,060,000 lbs., 27 percent more than the same month a year ago, but 35 percent lower than the May 1940-44 average. Output in May 1946 was the highest for the month since 1942. Nearly as much casein was produced during May as during the first four months of the year combined. Cumulative production for the year through May was 6,255,000 lbs. a decline of only 2 percent from the corresponding period in 1945 and 60 percent less than the average of the same months during 1940-44.

WAA Offers 3000 Tons Of Bleached Sulphite

WASHINGTON, D. C.—Nearly three thousand tons of Swedish sulphite wood pulp, which cost the government $100 per ton, are being offered for sale by the War Assets Administration. Fully bleached and of bond or book grade, this material is located at the ASF Depot, Bellwood, Va., and is being offered until July 26 at fixed price, O.P.A. ceiling, at $94 per air dry ton. Offering to priority and non-priority groups is made concurrently. The sale is being conducted by the WAA Richmond, Va., Regional Office.

Labor Board Orders Vote At Bemis Bag Plant

BOSTON, Mass.—The National Labor Relations Board has ordered an election to determine whether the 250 employes of the Bemis Brothers Bag Company of East Pepperell desire to be represented in collective bargaining by the International Brotherhood of Pulp, Sulphite & Paper Mill Workers.

Strathmore Presents Post-War Merchandising Plan

SPRINGFIELD, MASS. — Strathmore Paper Company's representatives are presenting the company's story of its post-war merchandising plan to its agents throughout the country through the medium of a large easel display book and some supplementary promotion material. During the war Strathmore carried on a "Post-War Planning" activity which had as its objective the simplification of product and distribution for the mutual benefit of the company and its agents. The results of this planning are embodied in the program currently being presented to Strathmore merchants. As a result of this planning, Strathmore has improved the variety of its lines and items while at the same time scaling the number of its lines to less than fifty percent of the pre-war total, and by eliminating a large number of items, the company simplified the stocking problem for its merchants.

A preview of this Strathmore Post-war Program was shown to the executives of Strathmore merchants shortly after V-J Day, prior to which time all basic plans had been completed. The company is now presenting this program to the merchants' salesmen. At the present time, Strathmore is manufacturing about eighty percent of the projected items of its post-war line, which gives a wide coverage in the fields of Bonds, Writings, Texts, Covers, Weddings, Papeteries and Bristols.

French Production Reported At Half Pre-War Average

WASHINGTON — French paper production had reached a level of 50 percent of the 1936-39 average by May, 1946, according to a report to the Department of Commerce. During the month of March the production of paper and cardboard rose about 25 percent over that of the preceding month, newsprint production was 55 percent higher, and the wood pulp production of 19,307 tons was 25 percent higher than in the preceding month.

When Hoffman Made Paper

The History of The Hoffman Paper Mills in Maryland, by May A. Seitz. (Price $2, The Holliday Press, 30 West Chesapeake Ave., Towson 4, Maryland.)

The story of the Hoffman Paper Mills in Maryland is perhaps as exciting as any in the annals of the history of the American paper industry, and this book should prove interesting reading to those who would study that industry from its beginning. On the premise that bare genealogies make dry reading, Mrs. Seitz has based her 63-page book on the American paper industry in its infancy, with a carefully preserved sense of the relationship of industry to history. The author's own membership in the Hoffman family has enabled her to include intimate sketches which another writer might easily have overlooked. The story begins when reports of opportunities in the New World induce young William Hoffman, after an apprenticeship in paper, to leave his home near Frankfurt-on-the-Main, Germany, to seek his fortune in America. It closes 117 years later.

William Hoffman arrived in Philadelphia on October 26, 1768, and by 1775 he was one among dozens of small craftsmen who ran rented paper mills in that area. After he moved to Maryland in 1775 he became a leading figure in the trade and the founder of a powerful dynasty of paper manufacturers in the Middle Atlantic States. The significance of William Hoffman's paper mill, during these early years, for the cause of the American Revolution is clearly pointed out by the author. When William Hoffman died in 1811, he was survived by five sons. Peter Hoffman, the fourth son, was the connecting link between the first generation William Hoffman and the third generation William Hoffman, both the most outstanding paper makers in the family. One son, Henry Hoffman, was murdered in his paper mill supply store during a robbery; the murderer was never apprehended.

All the odds seemed to be against William Hoffman's sons and heirs. Destruction by fire and devastation by floods caused considerable losses and in 1893 the paper mills were closed.

And there are **five** big reasons . . . Uniform density — Longer period between regrinding — Absolute conformity to specifications and—Precision grinding ... *five big reasons* why you can count on greater dependability and longer life from Cincinnati Rubber Covered Rolls.

Send your next Roll to Cincinnati for Re-covering!

THE CINCINNATI RUBBER MFG. CO.
CINCINNATI 12, OHIO

OBITUARY

Lionel Bonneville

SPRINGFIELD, Mass.—Lionel E. Bonneville, 39, proprietor of the Bonneville Card and Paper company of this city and prominent in the Springfield paper business for several years, died in Wesson Memorial hospital last week after a brief illness. He was a large property owner and among other pieces of property owned the Jefferson House, a downtown hotel.

In 1932, Lionel Bonneville established his own business, The Bonneville Card and Paper Company, in Springfield. This company distributed greeting cards and fine papers until February, 1944, when Mr. Bonneville sold the fine paper part of the firm to Bulkley, Dunton & Company and became associated with that organization. The success and rapid expansion of Bulkley, Dunton's Springfield branch was largely due to his untiring efforts, his loyalty and devotion and to the splendid cooperation he had unstintingly given to John R. Whitney, manager of the branch.

Born in Holyoke, Mass., in 1907, Mr. Bonneville was educated in South Hadley and had his first job with the New York-New England Company of Holyoke. He later became associated with the Highland Manufacturing Company and stayed with that concern until 1932 when he established his own business.

He is survived by his widow and four children.

F. A. Burningham

APPLETON, Wis. — Foster Alonzo Burningham died suddenly on July 21st. He was a research associate, specializing in fiber microscopy at the Institute of Paper Chemistry, which he had recently joined.

Mr. Burningham was born in St. Paul, Minn., on March 8, 1892 and graduated from the University of Minnesota as a chemical engineer in 1918. During the first world war he did research work for the Chemical Warfare Service at the American University Experiment Station in Washington, D. C. Since 1919 and until he joined the Institute Staff he was a research chemist for the Brown Company in Berlin, N. H. He was at the time of his death Chairman of the Microscopy Committee of the Technical Association of the Pulp and Paper Industry. He was buried at St. Paul, Minn., on Tuesday, July 23rd and is survived by his wife, son and brother.

Fred P. Pandow

STEVENS POINT, Wis.—Fred P. Pandow, 45, Park Ridge, Ill., an employe of Consolidated Water Power and Paper Company for more than 20 years, died suddenly at a Stevens Point hotel Wednesday, July 17, as the result of a heart attack. He had played golf the previous afternoon with James A. Rush, manager of the Consolidated mill here. Survivors include the widow and three children. Funeral services were conducted July 20 at Wisconsin Rapids, his former home.

Arthur E. Hobday

SPRINGFIELD, Mass.—Arthur E. Hobday, 53, of 57 Nelson street, West Springfield, died suddenly at his home July 19. Born in England, he had lived in West Springfield for the past 35 years. He had held the position of superintendent with the Southworth Paper company in West Springfield for the past 11 years. He was a veteran of World War I.

Besides his wife, Helen E. Hobday, he leaves six children.

Douglas J. Cormack

TORONTO—Douglas J. Cormack, 50, assistant treasurer, Abitibi Power and Paper Co., Ltd., died Monday, July 8, in Toronto. He had been associated with the company for 18 years. He came to Toronto in 1930. Born in Scotland, he attended university there before coming to Canada. Surviving are his widow, a daughter and a son.

James D. Clarke

TAMPA, Fla.—James Duncan Clarke, president of the Peninsular Paper Company, died at his home here July 17. The deceased is survived by his widow and two sons.

FLORIDA PULP and PAPER COMPANY
Depends upon
WARREN PUMPS
for important services at their modern mill at Pensacola, Florida, which was completed in 1941 and which was designed and built to make bleached and unbleached specialty papers. Original equipment included fifty-four Warren Pumps and several others have since been added — all giving on-the-job dependability with economical operating and maintenance costs.
Warren Type S.O.D. Pump handling 3½" Stock
Paper Machine Fan Pump
for every Pulp and Paper Mill Service
Specify Dependable
WARREN PUMPS
Pump for weak liquor to recovery room
WARREN STEAM PUMP CO., INC.
WARREN, MASSACHUSETTS

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, July 24, 1946

BLANC FIXE—Active demand reported. Pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f. o. b. works.

BLEACHING POWDER—Market tight, demand reported strong. Supply situation is reported favorable with containers a bit easier to get. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots at works.

CASEIN—Prevailing prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 41 cents per pound; 2,000 pounds 42 cents per pound; less than 2,000 pounds, 43 to 44 cents per pound, f.o.b. shipping point. Imported, 43 cents per pound.

CAUSTIC SODA—Demand continues very heavy. Cutback production reduces stocks. Market tight with demand above output. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $2.95 per 100 pounds.

CHINA CLAY—Current demand is moderate. Quotations remain unchanged. Supply good. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted from $12 to $22 per ton, at mine; Imported clay is quoted at from $22 to $25 per long ton, ship side.

CHLORINE—Improvement expected in this tight market, demand heavy. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f. o. b. works.

ROSIN—Demand continues moderate. "G" gum rosin is quoted at $6.95 per 100 pounds, in drums, at Savannah; "FF" rosin at $6.87 per 100 pounds, in drums at New York; seventy percent gum rosin at $7.00 per 100 pounds, f. o. b. works.

SALT CAKE—Increasingly heavy demand keeps inventories low. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f. o. b. shipping point.

SODA ASH—Active over-all demand is reported. Market remains tight with demand above output. Orders allocated to equalize distribution. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels $1.35, at works.

STARCH—Demand continues to exceed supplies. Output is fair to good. Market firm at recent advances in price. The pearl grade is quoted at $6.28 per 100 pounds; powdered starch at $6.39 per 100 pounds; all prices in bags; car lots, f. o. b. Chicago.

SULPHATE OF ALUMINA—Morerate supplies with demand reported active. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.35 per 100 pounds, in bags, car lots f. o. b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand moderate. Annual contracts are quoted at $16 per long ton, f. o. b. mines; the prices at Gulf Ports is $17.50 per long ton.

TALC—Prices on talc continue unchanged. Demand steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices in car lots.

MARKET QUOTATIONS

While the trade is adjusting its policies, pending determination of further authority for OPA and its scope, the prices quoted continue under recent formulas. All quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	*$73.80	@	—
Sheets	75.00	@	—
Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard Bag	*4.375	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00
Boards, per ton—			
News	*$4.00	@	—
Chip	*$4.00	@	—
Sgl. Mla. Ll. Chip	*65.00	@	—
White Pat. Coated	*79.00	@	—
Kraft Liners 50 lb.	*74.00	"	—
Binders Boards	84.00	"	116.00

*OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are repsesentative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper Delivered in Zone 1:

No. 1 Glossy Coated	$13.65@$15.50
No. 2 Glossy Coated	12.40 " 14.00
No. 3 Glossy Coated	11.60 " 13.25
No. 4 Glossy Coated	11.15 " 12.75
No. 1 Antique (watermarked)	10.25 " 11.75
No. 2 Offset	9.60 " 11.00
A Grade E. F.	9.35 " 10.75
A Grade S. & S. C.	9.60 " 11.00
B Grade E. F.	8.85 " 10.25
B Grade S. C.	9.10 " 10.50
C Grade E. F.	8.55 " 9.75
C Grade S. C.	8.80 " 10.00
D Grade E. F.	8.25 " 9.50
D Grade S. & S. C.	8.50 " 9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight. Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$94.00
Unbl. Softwood Sulphite	82.00
Bl. Hardwood Sulphite	91.50
Unbl. Hardwood Sulphite	79.50
Bl. Glassine Sulphite	97.00
Unbl. Glassine Sulphite	86.00
N. Bleached Sulphate	94.00
S. Bleached Sulphate	88.00
N. Semi-Bleached Sulphate	89.00
S. Semi-Bleached Sulphate	83.00
N. Unbl. Sulphate	76.00
S. Unbl. Sulphate	69.50
Bl. Soda	84.00
Unbl. Soda	80.00
Groundwood	58.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area)	15.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Nominal Prices Delivered Mill + 5% Brokerage)

Shirt Cuttings—		
New White, No. 1	7.25 @	Nominal
Silesias No. 1	5.75 "	"
New Unbleached	7.50 "	"
Blue Overall	5.50 "	"
Fancy	3.50 "	"
Washables	3.00 "	"
Bleached Khaki Cutting	4.25 "	"
Unbleached Khaki Cuttings	3.50 "	"

Old Rags

White, No. 1—			
Repacked	3.80	@	Nominal
Miscellaneous	3.20	"	"
White, No. 2—			
Repacked	2.90	"	"
Miscellaneous	2.65	"	"
Thirds and Blues—			
Repacked	2.20	"	"
Miscellaneous	1.30	"	"
Roofing Rags—			
No. 1	1.55	"	"
No. 2	1.45	"	"
No. 3 (bagging)	1.35	"	"
No. 4	1.35	"	"
No. 5A	1.35	"	"
Old Manila Rope	5.75	"	"

Foreign Rags

(All Prices Nominal)

New Rags

New Dark Cuttings	6.00	@	Nominal
New Mixed Cuttings	6.50	"	"
New Light Silesias	5.75	"	"
Light Flannelettes	5.75	"	"
New White Cuttings	12.00-14.00		
New Light Oxfords			Nominal
New Light Prints	8.00-10.00		

Old Rags

No. 1 White Linens	8.50	@	Nominal
No. 2 White Linens	7.50	"	"
No. 3 White Linens			Nominal
No. 4 White Linens	3.25	@	Nominal
No. 1 White Cotton	4.75	"	"
No. 2 White Cotton	3.75	"	"
No. 3 White Cotton	3.00	"	"
No. 4 White Cotton	2.20	"	"
Extra Light Prints	2.40	"	"
Ord. Light Prints	5.50	"	"
Med. Light Prints	4.75	"	"
Dutch Blue Cottons			Nominal
French Blue Linens			Nominal
Checks and Blues	4.00	"	"
Linsey Garments	4.00	"	"
Dark Cottons	3.60	"	"
Old Shopperies	3.35	"	"
New Shopperies	3.50	"	"
French Blues			Nominal

BAGGING

(Prices to Mill, f.o.b. N. Y.)

Gunny No. 1—			
Foreign	4.00	@	Nominal
Domestic	3.30	"	"
Wool Tares, light	4.00-4.75		
Wool Tares, heavy	4.50	@	Nominal
Bright Bagging	3.50	"	"
Manila Rope—			
Foreign			Nominal
Domestic	5.75	@	Nominal
Jute Strings	5.50	"	"
No. 1 Sisal Strings	4.00	"	"
Mixed Strings	1.50	"	"

Waste Paper

Nominal Prices to Mills

(Dollars Per Ton)

F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$67.50	@	—
No. 1 Hard White Envelope Cuts	62.50	"	—
No. 1 Hard White Shavings, unruled	57.50	"	—
No. 1 Hard White Shavings, ruled	50.00	"	—
Soft White Shavings, one cut	57.50	"	—
No. 1 Soft White Shavings	50.00	"	—
Soft White Shavings, Misc.	43.00	"	—
No. 1 Fly Leaf Shavings	33.50	"	—
No. 2 Fly Leaf Shavings	22.50	"	—
No. 1 Groundwood Fly Leaf Shavings	25.00	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	18.50	"	—
Mixed Colored Shavings	15.50	"	—
Mixed Groundwood Colored Shavings	18.00	"	—
Overissue Magazines	33.50	"	—
No. 1 Heavy Books & Magazines	38.50	"	—
Mixed Books	22.00	"	—
No. 1 White Ledger	46.00	"	—
No. 2 Mixed Ledger, colored	40.00	"	—
New Manila Envelope Cuttings, one cut	57.50	"	—
New Manila Envelope Cuttings	53.00	"	—
Extra Manilas	39.00	"	—
Mixed Kraft, Env. & Bag Cuttings	55.00	"	—
Kraft Envelope Cuttings	65.00	"	—
Triple Sorted, No. 1 Brown Soft Kraft	50.00	"	—
New 100% Kraft Corrugated Cuttings	45.00	"	—
No. 1 Assorted Old Kraft	35.00	"	—
New Jute Corrugated Cuttings	18.50	"	—
Old 100% Kraft Corrugated Containers	35.00	"	—
Old Corrugated Containers	78.00	"	—
Box Board Cuttings	14.50	"	—
White Blank News	33.00	"	—
Overissue News	22.00	"	—
No. 1 News	20.00	"	—
No. 1 Mixed Paper	19.00	"	—
Old Corrugated Containers	17.00	"	—
Mill Wrappers	22.00	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.21	@	—
White Hemp	.21	"	—
Fine Polished—			
Fine India	.26	"	—
Unpolished—			
Box	.17¼	"	—
Paper Makers	.17	"	—
Tube Rope	.19	"	—
Wall Paper	.20½	"	—
Wrapping	.23	"	—
Soft Fiber Rope	.19	"	—
Cotton	.25	"	—
(Hard Fiber)			
Medium Java	.18	"	—
Mex. Sisal	.16	"	—
Manila	—	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—	
New White No. 1	.07¼
New White No. 2	.05¾
Light Silesias	.05¾
Black Silesias, soft	.03¾
New Unbleached	.07½
Washable Prints	.04¼
Washable No. 1	.03
Blue Overall	.05½
Cottons—According to grades—	
Washable Shredding	.01¾
Fancy Percales	.04¾
New Black Soft	.03¼
Khaki Cuttings—	
Unbleachable Cotton Cuttings	.03½
Bleachable Cotton Cuttings	.04¼
Men's Corduroy	.03½
Ladies' Corduroy	.03
Cottonades	.03¼

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)			Nominal
Roofing Stock—			
Foreign No. 1			Nominal
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign			Nominal
Domestic	3.00	@	3.50
No. 1 Clean Bright—Sisal Strings	.04	"	—
No. 2 Clean Bright—Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign			(nominal)
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign			(nominal)
Domestic	2.75	"	3.00
Manila Rope—			
Foreign			(nominal)
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign			(nominal)
Domestic	3.00	"	3.25
South America	—	"	3.25

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	@	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign			(nominal)
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign			(nominal)
Domestic	2.75	"	3.00
Manila Rope—			
Foreign			(nominal)
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign			(nominal)
Domestic	3.00	"	3.25
South America	—	"	3.25
Wool Tares—			
Foreign			(nominal)
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.50
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	@	.04¾
Fancy Percales	.04¾	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¾
Underwear Cutters, Bleached	.06¾	"	.06¾
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¾
New Black Silesias	.03	"	.03¾
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¾	"	.06½
B. V. D. Cuttings	.06¾	"	.06½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

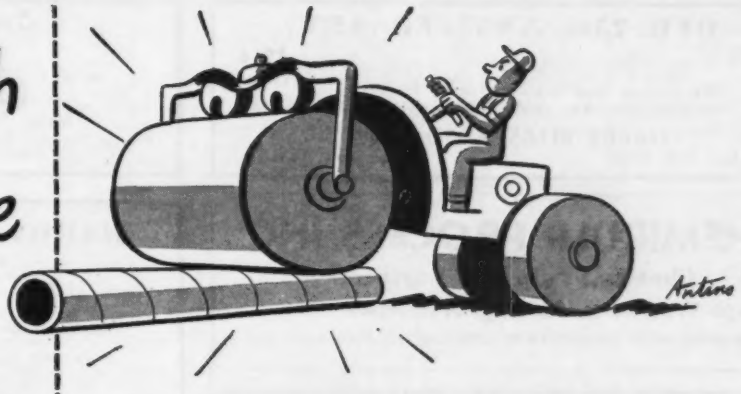
Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	@	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—

High Crush Resistance with MEAD Chestnut Cores



MEAD CHESTNUT CORES are known for their high crush-resistance, their ability to take tough handling. Spiral construction, plus the natural strength and hardness of the chestnut fibre, give them great rigidity and durability. Write for samples made to your specifications and give them the works. See for yourself the extra strength that makes them a "must" wherever handling conditions are bad.

Make your next carload . . . MEAD CHESTNUT CORES.

THE MEAD CORPORATION
Lynchburg, Virginia

GIVE YOUR BEATERS A TONIC!

Add Magnus Beatex to your beaters and look for these improvements in your stock:

1—Reduced beating time. Less jordanning.

2—A better web, due to more uniformly defibred and hydrated stock.

3—Improved freeness. Less compacted paper. Better interlacing of fibres with improved retention of short fibres and fillers. Dryer stock at press rolls.

4—Greatly improved dispersion of wax and other foreign elements from furnish. Ability to use more low-cost furnish on some stocks.

5—Less slime troubles. Beatex tends to disperse incipient slime formations.

6—Marked improvement in absorbency on such papers as sanitary napkins, diapers, cleaning tissue towelling and blotting. A softer and more readily formed fruit wrap stock.

If you make board or roofing stock, kraft and other hard stocks, fruit wrap or any absorbent papers, make a thorough investigation of Magnus Beatex.

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MAGNUS Paper Mill Cleaners

OUR 25th ANNIVERSARY

1921 1946

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ASSOCIATED WITH CHEMIPULP PROCESS LIMITED, MONTREAL, QUE.

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K-121-B DEINKING — DECOLORIZING and COOKING PROCESSES K-C-2

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Stock Chests
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Pulpers, Disintegrators
Dusters of all Kinds
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THE MAYER MACHINE COMPANY, INC.

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WE HAVE BUILT LARGE PULP AND PAPER MILLS

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THE CORROSION RESISTANT ALLOY

CAST • ROLLED • FABRICATED

for all equipment exposed to corrosion by sulphite acids

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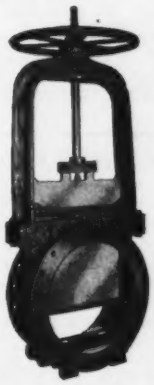

RECORD PAPER & PULP STOCK VALVES "BONNETLESS SELF CLEARING" – – – "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M., all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
- The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

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LIVERMORE FALLS, MAINE, U. S. A.

POSIDRIVE WINDER SHAFT

Union's New Winder Shaft Has Many Features:

1. POSITIVE DRIVE
2. NO LOOSE WEDGES
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Eliminates Human Error

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DEAD WEIGHT MICROMETERS

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Old inaccurate Scales, Micrometers and other testers recalibrated and made over like new.

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PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

Copy for Classified Advertisements must be in our office on Monday preceding publication

HELP WANTED

Wanted: Night Superintendent for Specialty Coated Paper Mill, capable of taking full charge. Give age, experience, and salary expected in first letter. Address Box 46-455 care Paper Trade Journal. J-25

WANTED

Plant Engineer for two Machine Mill, at Wallcomsac, N. Y. Revamping and rebuilding with extensive expansion program under way including Corrugating Box equipment. Experience in Power, Steam, Turbine and paper making required. Do not reply unless qualified. State age, experience and education, salary expected. Wallcomsac Paper Mills, Inc., 25 Vanderbilt Avenue, New York 17, N. Y. J-25

PROCESS ENGINEER
Wanted

With wide experience in pulp and paper making processes. Must be able to develop flow diagrams and specify related equipment. Excellent opportunity for the right man. Please furnish complete experience record.
Address Box 46-261 care Paper Trade Journal. TF

SALARIED POSITIONS

$2,500-$25,000. This thoroughly organized confidential service of 38 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

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117 Dun Bldg., Buffalo 2, N. Y.

WANTED

We have an opportunity for a man experienced in the conversion of facial tissue, familiar with the Teall folder, Container Equipment gluers and automatic boxers. Salary is entirely dependent upon how valuable you make yourself to us. Permanent, responsible job. Complete history of your experience and preferably a picture with your reply. Vicinity New York City.
Box 46-427 care Paper Trade Journal. A-15

WANTED

2 Machine Tenders and 2 Back Tenders for 104" Fourdrinier Machine making Board, 2 Machine Tenders and 2 Back Tenders for 82" trim, three-cylinder Machine making Board.

Mill planning extensive expansion and reconversion program.

Write to Box No. 46-424 giving experience, references, etc. J-25

CHARLES P. RAYMOND SERVICE, INC.
294 Washington St., Boston, Mass.
Specializing in Paper Mill Personnel

Positions Now Open

Cylinder tour boss, folding boxboard
Man to head up receiving and handling department
Chemists and head chemists
Fourdrinier tour boss and Fourdrinier machine tender Canadian mill
Divisional sales manager
Sales training director
Estimator with knowledge of folding carton, shipping and containers
Comptrollers and assistant comptrollers
Junior paper mill engineer, Mechanical graduate
Mechanical or chemical engineer with 10 years paper or pulp manufacturing experience salary $500-600 month
Mechanical engineers and draftsmen
Machine tenders
Technical director tissue mill
Cost accountants and many others

We invite correspondence (strictly confidential) with paper and pulp mill executives seeking new positions and with employers seeking new personnel. J-25

Printing department supervisor required immediately by converter in New York metropolitan area. Give full information in first letter. Reply to Box 46-487 Paper Trade Journal, 15 West 47th Street, New York 19, N. Y.
A-8

WANTED
TOUR BOSS

Experienced in Roofing Felt Mill operations, to be trained for Assistant Superintendent job in New Orleans Plant of long established nation-wide organization. Send complete resume giving experience, education, salary expected, etc., to Box 46-483 care Paper Trade Journal. A-8

Adjuster - mechanic, Satchel Bottom Bag Machines excellent opportunity with established firm. Good Salary and working conditions. State experience. Address Box 46-493 care Paper Trade Journal. J-25

WANTED

Machine Tenders and Back Tenders, Several Openings on Fourdrinier Machines in Mill Making Light Weight Sulphite Grades. Location Southern New York. Give Details, Age, Family Status and Experience. Address Box 46-489 c/o Paper Trade Jorunal. A-8

HELP WANTED

Superintendent — Mechanical Engineer preferred—to take charge of large Paper Bag Manufacturing Plant in N. Y. City. Prefer man who has had experience in this line. Age 35 to 45 years. Must be capable of handling labor, etc.
State qualifications and salary required. Excellent future for right man.
Address Box 46-462 care Paper Trade Journal. A-8

WANTED

Tour Boss, Machine Tenders, Back Tenders, Third Hands, familiar with manufacturing toilet, napkin, facial tissue, in an Eastern mill. Reply to box—46-466 care Paper Trade Journal. S-12

WANTED

Eastern chemical company is in need of a chemist or chemical engineer for research and development work in the field of chemical products for paper mills. Man with graduate training, diversified experience in the paper industry and demonstrated research ability is desired. Excellent opportunities for qualified person. Address reply to Box 46-473 care Paper Trade Journal. A-1

WANTED

Long established, nation-wide organization with extensive expansion program under way, is in need of an experienced Tour Boss familiar with Felt Mill operations, to be trained for Assistant Superintendent job at its New Orleans Plant. Exceptional opportunity for right man. Send complete resume giving experience, education, salary desired, etc., to Box 46-474 care Paper Trade Journal. J-25

WANTED

Mid-West Pulp and Paper Mill desires Boss Machine Tender or Tour Foreman for fourdrinier machine. Excellent opportunity for advancement for right man. Technical training desirable but not essential. Write Box 46-486 giving full information in first letter, including compensation required. A-8

WANTED

Engineer capable of taking complete charge of Power Plant in a Paper Mill located in the South.

Must be well experienced in boiler and turbine generator operations and maintenance.
Prefer a Graduate Engineer.

Address Box 46-488 care Paper Trade Journal. A-8

WANTED—Foreman or Superintendent having experience in embossing and embossing machines and methods. Must be able to rebuild, improve and devise. Address Box 46-428 care Paper Trade Journal. A-15

WANTED—Machine Tender experienced in tissues made on cylinder machine. Good wages, steady work, references required. Address Box 46-479 care Paper Trade Journal. A-1

CHIEF CHEMIST to supervise mill control and some development work in paperboard mill and converting plant. Give details of training, experience and salary desired, in first letter. Address Box 46-485 care Paper Trade Journal. A-1

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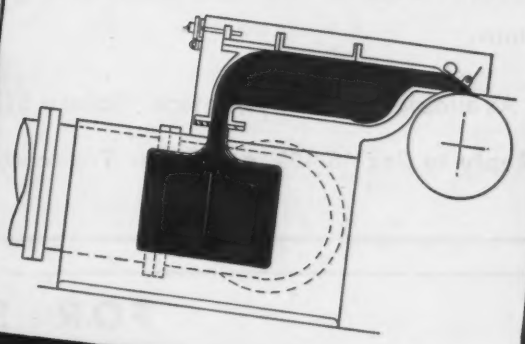
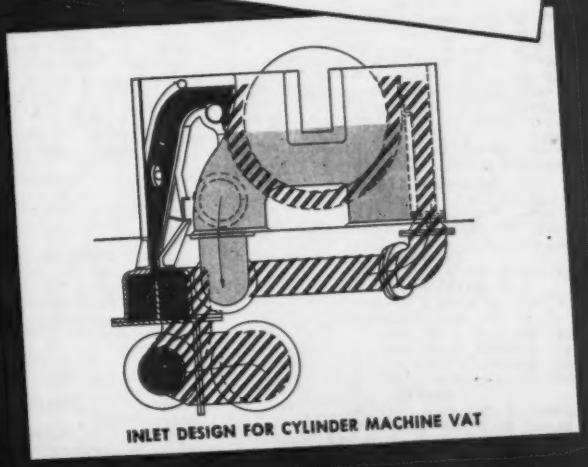
...ADAPTABLE TO ANY MACHINE

INLET DESIGN FOR FOURDRINIER





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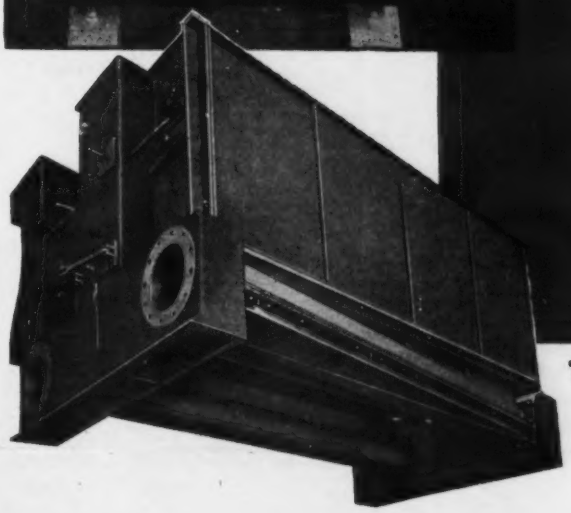

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Associate: ALEXANDER FLECK LIMITED, Ottawa, Canada

SITUATIONS WANTED

SITUATIONS WANTED

TECHNICAL DIRECTOR

25 years in responsible charge

Now making SOUTHERN KRAFT ASPHALTING, CEMENT SACK, SATURATING and other converting grades to specifications.

Available on 60 days notice. Salary $12000.

Reply to Box 46-499, c/o Paper Trade Journal.

A-15

SITUATIONS WANTED

MILL REPRESENTATIVE covering the jobbing and direct trade for the past 15 years from Pennsylvania through to the Carolinas, now desires to operate over the same territories with 2 or 3 non-conflicting lines. What have you to offer? Address Box 46-412 care Paper Trade Journal. TF

CHEMIST, EXPERIENCED, QUALITY AND TECHNICAL CONTROL, New England or Eastern New York preferred. Address Box 46-460 care Paper Trade Journal. A-8

POSITION WANTED — Superintendent practical papermaker, 30 years experience in the manufacture of folding boxboard and cylinder specialties. Address Box 46-459 care Paper Trade Journal. A-1

NIGHT OR TOUR BOSS on folding and test grades. Can report at once. Address Box 46-478 care Paper Trade Journal. J-25

WANTED — Position as Chief Engineer — 18 years of experience in Power Plant operation, heat balance and Plant efficiency. Age 40. Best of references. Address Box 46-449 care Paper Trade Journal. A-15

MECHANICAL ENGINEER—Age 35. College graduate. Full member A.S.M.E., experienced on paper mill machinery and chemical plant and machinery design. Addres Box 46-494 care Paper Trade Journal. A-8

FOR SALE

BEATERS
1—3000 lb. Holyoke-Iron Tub Beater.
2—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—1000 lb. Stout & Mills Iron Tub Beater.
1—400 lb. Gavit—iron tub beater.
1—Breaker Beater—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.
1—Breaker Beater Perforated Face Roll—42" face roll—no tub.

CALENDER STACKS
1—5 roll 84" face—Farrel.
1—6 roll—72" face.
1—7-roll 36" Holyoke Machine. (supercalender)

CENTRAP
1—Shartle Brothers Centrap.

COATING MACHINE
1—26" six roll coating machine.

CYLINDER MOULDS
2—30" diameter x 74" face.
2—30" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 84" face.

DRIVES
4—Smith & Winchester Drives.
1—Moore & White mortise gear drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM to 418 RPM.

DRYERS
1—48" diameter x 60" face, anti-friction bearings. Creping dryer.
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby)
2—36" diameter x 64" face, with frames gears and bearings.
2—25" x 120" (Baby Dryers).
2—30" x 120".
1—48" x 100".
11—30" x 80". (Steel Dryers).
5—24" x 76". (Steel Dryers).
2—36" diameter x 38" face.

ERKENSATORS
2—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREENS
1—12 plate Murray Dunbar Flat Screen.
1—4 plate Flat Screen.

HYDRAPULPER
1—3' dia. Shartle Hydrapulper.

JORDANS
1—Noble & Wood Monarch, anti-friction bearings, direct connected to 125 h.p. synchronous motor.
1—No. 2 Miami Jordan.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble and Wood, Monarch, new fillings.

LABORATORY EQUIPMENT
2—Mullen Testers.

MOTORS
1—125 h.p. synchronous motor—including starting equipment. (450 r.p.m.)
1—25 h.p. motor, including starting equipment.

PRESS ROLLS (Rubber Covered)
1—27½" diameter x 186" face.
1—26" diameter x 185" face.

PULP EQUIPMENT
1—84" Carthage Chipper (Four Knives).
1—32" three pocket Glens Falls Grinder (for 27" wood).

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULPER
1—Jones Pulper.

PUMPS
1—10 x 11 Connersville Vacuum Pump.
1—10 x 7½ Connersville Vacuum Pump.
1—No. 4 Connersville Vacuum Pump.
1—6 x 2L Connersville Vacuum Pump.
1—No. 7 Sturtevant Vacuum Pump.
1—Buffalo Pump—5500 g.p.m. direct connected to 100 H.P. Motor (50' head).
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

RAG CUTTER
1—Taylor Stiles, 14", Little Giant.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel — 112" face — bowls 20" diameter.
1—2 Bowl Reel—110" face.
1—Set Stack Reels, capacity trim 143".

ROLLS
500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

ROTARY SCREENS
3—Moore & White Rotary Screens (alternating diaphragm type).

SAVEALL
1—Saveall 36" diameter x 96" face cylinder mold. (With iron end vat.)
1—Saveall 36" diameter x 96" face cylinder mold. (With wood vat.)

SCREW PRESS
1—Valley Iron Screw Press.

SCREEN PLATES
36 plates—43 x 11 1/32"—.050 cut—bevel edges.
24 plates—Recently recut .008.
12 plates—Recently recut .035.
Also other sizes and cuts in stock.

SHREDDERS
1—No. 25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder.
1—Waterville Shredder.

SHEETERS
1—84" Finlay Sheeter, Erie Layboy and 9 roll backstand.
1—128" Moore & White Sheeter with layboy.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SLITTERS AND WINDERS
1—52" Johnstone Slitter & Winder.
1—36" Beck Razor Blade type Slitter & Winder.
1—110" Beloit slitter (slitter attachment only).
1—60" Moore & White Slitter and Winder set for 5/8" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
1—120" Moore & White 4 drum slitter.
1—80" 2 drum Warren Winder.

STOCK PUMPS
1—12 x 20 Triplex Shartle.
1—10 x 20 Duplex Shartle Brothers.
1—10 x 12 open impeller. (All lead).
1—8 x 18 Downingtown Duplex.
Numerous other Centrifugal Stock Pumps. Advise as to your requirements.

SUCTION BOXES
1—Nash 100" face Suction Box.
1—Brass Suction Box—96".

VACUUM PUMP
1—#2 Nash Vacuum Pump.

V-BELT DRIVES
1—{23" diameter x 14" face, 10 grooves. {13" diameter x 14" face, 10 grooves.
1—{32" diameter x 21¾" face, 15 grooves. {14¾" diameter x 21¾" face, 15 grooves.

WET MACHINE
1—74" Moore & White.

We are always in the market to purchase your surplus or idle machinery. What have you to offer? Wanted Cylinder and Fourdrinier Machines (complete mills).

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PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

1—Shartle Brothers 2 cylinders—120" machine. (Can supply four additional cylinders and vats). Machine includes:—2 pairs of baby presses, 3 pairs of primary presses, 2 pairs of main presses, 27 dryers 86" diameter x 115¼" face—3 deck—spare cylinder mould and couch. Drives, stands, line shaft and pulleys. Blue prints available.

AIR HOISTS
2—Two-Ton Ingersoll Rand
2—Five-Ton Ingersoll Rand

ATTRITION MILL
1—Sprout Waldron direct connected to two 20 H.P. motors—3 phase—60 cycle—440 volts.

BEATERS
2—1000 lb. Horne Iron Tub.
1—1200 lb. Holyoke Wood Tub.
4—Valley Iron 750 lbs. Iron Tub Beaters, with Silent Link Belt Drive.

BIRD SCREEN PLATE
26 Plate—60 cut. New condition.

BLOWERS
1—American ball bearing blower, size 17" x 23" for motor drive.
1—American Blower, size 40. For belt drive.

CALENDER DOCTORS
1 set of 16 Warren Doctors 164" face with frames.

CALENDER ROLLS
30 rolls various sizes

CALENDER STACKS
1—6 roll Beloit, 110" face.
2—2 roll Holyoke 36" face.
1—9 roll Moore & White—82" face.

CONVERTING EQUIPMENT
4—Sanitary Napkin Machines. With motors and starters.
1—Bliss Double Head Stitcher.
4—Waterville Grinders.
1—36" Waldron Reeling Machine.
1—39" Dampening Machine.
1—38" Brush Coating Machine.
1—Copper Mixing Tank with agitator—40 gal.
1—Cast Iron Kettle 29" x 24" 2 outlets.

CREPING MACHINE
1—Complete Bagley & Sewall Creping Machine. Dryer 100" face x 48" diameter. Ball bearing equipped. Used 6 months.

CYLINDER MOLDS
2—Impco—84" face—40" diameter with stainless steel face wire
2—110" face x 38" dia.
1—90" face x 36" diameter—with ball bearings and cast iron end vats.
6—84" face x 38" diameter.
4—Cylinder Molds—cast iron end vats—cylinders 120" face x 36" diameter. Ball bearing.

DANDY ROLLS
2—122" face 10" dia.
1—138" face 12" dia.
1—129" face 9½" dia.

DRIVES
1—Falk 25 h.p.—7.5 to 1.—1750 r.p.m.

DRYER DOCTORS
40—Warren Doctors. Various sizes.

DRYERS
36—28" diam. 96" face 2 deck frames Beloit.
2—48" Dia. x 46" Face. Chromium Plated.
2—24" Dia. x 46" Face.
4—48" diameter x 70" face.

ELECTRIC HOIST
1—Sprague Electric 3 ton hoist—5 h.p. 3 phase —60 cycle—110 volts.

FLAT SCREENS
1—8 plate Sandy Hill Packer—roller shoes.
1—10 plate Packer screen with scraper.

FOURDRINIER SHAKES
1—Beloit Fourdrinier Shakes.
1—Sandy Hill Bertram Shake. Late type.

FOURDRINIER WET END
1—120" Beloit Fourdrinier Wet End.
1—74" Pusey & Jones Wet End.

GRANITE ROLLS
2—112" face 20" diameter.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped.
1—Jeffrey Swing Hammer size 18"x24"—Type A.
1—Williams 18" Hammermill Ball Bearing.

HOG
1—Mitts & Merrill Hog. Number 5252.

JORDANS
2—E. D. Jones Majestic Jordans, with one new set of fillings for both plugs and shell—belt drives.
2—#2 Miami Jordans—motor driven.
1—Noble & Wood Pony—belt driven.

MISCELLANEOUS
2—Nugent Oil Filters (new).
1 Shartle Brothers cast iron Riffler or Settling Trough. 72' long, 6'7" wide.

MOTORS
1—Westinghouse 200 h.p.—235 r.p.m.—440 volts —3 phase—60 cycle.

PLATERS
2—Holyoke 2 Roll 18" dia. 36" face.

PULLEYS
60—Cone Split and Solid Cast Iron Pulleys. Various Sizes.

PULP EQUIPMENT
1—Economy Electric Pulp Baler.
1—Carthage 4 pocket 27" grinder. Ball bearing equipment
1—126" face Kamyr Press.
1—84" Sumner Disc Barker with motor.

PULPERS
1—Sturtevant Bale Pulper with conveyer & motors used three years.
1—Voith Pulper 20 tons cap.

PUMPS
4—Worthington Pumps 10,000 g.p.m.—35' head. Requires 75 h.p. at 550 r.p.m.
1—DeLaval 6" x 6".
1—DeLaval 1800 g.p.m. 30' Head, 500 r.p.m.—8" Suction—10" Discharge, Ball Bearings—Belt Driven—or for Direct Connection to Motor. Open Impeller.
15—Worthington Close Coupled Centrifugal Pumps. 6" x 6" 650 g.p.m. 25' head. 6 h.p. Star Electric splash proof motor. 1750 r.p.m. 440 volt, 3 ph.-60 cycle, ball bearing.
16—Warren Vertical Pumps. 6" suction. 3" discharge. 135 g.p.m. 80' head. Direct Connected 6 h.p. General Electric motor. 1750 r.p.m. 440 volts, 3 ph.-60 cycle, ball bearing.
1—Warren Close Coupled Centrifugal Pump. 3" suction. 2" discharge. 60 g.p.m. 90' head. 6 h.p. General Electric 1750 r.p.m. 440 volts, 3 ph-60 cycle, ball bearing. All the above pumps and motors are in excellent condition and are of bronze construction.
2—Worthington 3". 2 stage, 200 g.p.m. 224' head. Bronze Ball Bearings.
2—Warren Double Suction Ball Bearing, 6" Suction—14" Discharge—900 g.p.m., 250' Head—1150 r.p.m.
4—Pusey & Jones Open Impeller, 10" Stock Pumps, Belt Driven.
2—8" Pusey & Jones Open Impeller Stock Pumps, Belt Driven.
1—Worthington 480 g.p.m. 35' head 1750 r.p.m. Ball bearing.
1—15" Buffalo—4000 g.p.m.—70' head. For direct connection to motor.
2—La Bour Company self priming ball bearing pumps, 2½" suction, 2½" discharge. 150 g.p.m.—30" head with extended base for motor.
1—Domestic Pump ball bearing—250 g.p.m., 4" suction, 3" discharge—30' head with extended base for motor.
1—Marlo ball bearing pump—420 g.p.m.—100' head, 4½" suction, 3" discharge. With extended base for motor.

REELS
1—Black-Clawson 2 Bowl—120" face. Takes 60" diameter roll.

REFINERS
2—#1 Claflin Refiners. Bronze construction.

ROLLS
40—Table, Dress, Felt, Wire, Breast and Calender Rolls. Various Sizes.

ROTARY COOKER
1—Rotary Cooker—6' dia. x 21' long—complete with drive.

ROTARY DUSTERS
2—E. D. Jones Steel cage down draft dusters (wing type). 48" diameter—14'6" long.

ROTARY SCREENS
2—#2A Bird with copper vats.
2—#2 Bird with copper vats.
2—#1 Bird with steel vats, lead lined.
1—Moore & White.

RUBBER COUCH
1—82" face x 18" diameter.

RUBBER PRESS ROLLS
1—135" Face—26" Diameter } Used 20 Days
1—136" Face—27½" Diameter }
1—119" Face—19½" Diameter.
1—109" Face—17½" Diameter.
1—120" Face—19" Diameter.
1—118" Face—18" Diameter.
1—120" Face—18" Diameter.
1—107" Face—18" Diameter.
1—100" Face—18¼" Diameter.

SAVEALLS
1—A. D. Wood cylinder 48" dia. 60" face.
1—Dorr Company No. 40 ADKA Saveall 340-440 GPM. Used 1 month.

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years.

SHEETERS
1—60" Beloit Single Knife heavy duty.

SHREDDERS
2—24" Sprout Waldron heavy duty shreddors—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder.

SLITTERS AND WINDERS
82" Warren two drum—fully rebuilt.
1—41" Waldron Slitter and rewinder. Roll embossing attachment.

SILL PLATE—CAST IRON
300 Ft. 12" wide 1" thick.

STUFF PUMPS
1—10" x 20" Shartle triplex.
1—12" x 20" Shartle triplex.
2—4" x 10" Shartle Duplex direct connected to 3 h.p. gear head motors.

SUPERCALENDER STACKS
1—7 roll Norwood 72" face; 4 paper and 3 iron rolls. 1 new spare paper roll.
1—7 roll Norwood 52" face; 3 paper and 4 iron rolls. 1 new spare paper roll.
1—9 roll Norwood 83" face. Bottom roll 24" diameter. Top roll 20" diameter.

TRIMMER
1—63" Seybold.

TURBINES
2—General Electric Turbine Paper Machine Drive 250 h.p.—350 r.p.m. 125 lb. steam pressure 30 lb. back pressure.

UNWINDERS
1—42" John Waldron Unwinder. Used 1 year.

VACUUM PUMPS
1—14" x 20" Connersville.
1—#1 Nash—for direct connection to motor.

WASHERS (Beaters)
1—54" face—45" diam. with rigging. New.

WET MACHINES
1—76" Pusey & Jones Cylinder Mould, 76" face —36" diameter with rubber couch, 18" dia.

YANKEE DRYERS
2—Beloit 8' dia. x 175" face—75# working pressure.
1—Beloit 5' dia. x 194" face—75# working pressure.

THE ABOVE IS A PARTIAL LIST OF EQUIPMENT OFFERED FOR SALE.

AMERICA'S LARGEST BUYERS OF PAPER MAKING MACHINERY

We buy single items to complete Pulp and Paper Mills.

SITUATIONS WANTED

AMBITIOUS COLLEGE GRADUATE—Single; 25 years excellent adm. background; veteran; exp. in paper stock; interested in permanent position with future in waste paper or paper industry. Illini Hall, 725 S. Wright St., Room 335, Champaign, Illinois. A-1

ENGINEER-DRAFTSMAN: Wishes position. 25 years Pulp and Paper Mill mechanical and structural design, construction, maintenance. Prefer New England location with concern desiring man with general experience. University graduate. Address Box 46-475 care Paper Trade Journal. J-25

PRODUCTION ENGINEER — Ex-Superintendent on cylinder specialties, a practical papermaker who can produce quantity with quality. Can also solve manufacturing problems, large or small. Address Box 46-458 care Paper Trade Journal. J-25

JUNIOR CHEMIST — Graduate, New York State College of Forestry, Pulp and Paper Department. Also three years training in psychology. Age 24, single. Member TAPPI. Address Box 46-484 care Paper Trade Journal. J-25

CONVERTING PLANT or Finishing Dept. Mgr. Years practical experience, various grades, Sheeting, Rewinding, Cutting, Packing, Shipping, Clerical, Scheduling. Address Box 46-490 care Paper Trade Journal. A-15

PRACTICAL MASTER MECHANIC and a Paper Maker. Thirty years experience in maintenance, installation, layouts on cylinders and fourdrinier equipment. Making kraft, board, tissue, waterleaf, parchment and rag stock. Desire a permanent connection. Address Box 46-400 care Paper Trade Journal. A-15

FOR SALE

FOR SALE

Two Goulds Triplex pumps, size 6" x 8" with drive. Drive consists of 15 H.P. 3 phase, 60 cycle, 845 R.P.M., 220 volt, General Electric motors with reduced voltage magnetic controllers, and pressure governors. V belt pulleys on motors & pumps. Pumps have been on hydraulic elevator service and may be seen in operation.

Two close coupled American Marsh all bronze pumps, size 1½" 75 G.P.M. at 50 ft. head, complete with 3 H.P. 1750 R.P.M., 220/440 volt Howell 60 cycle motors.

GLENS FALLS INSURANCE COMPANY
Glens Falls, N. Y.

J-25

FOR SALE—1 Hamilton-Corliss Variable Speed Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers, any width. The Chesapeake Paperboard Co., Baltimore 30, Md. TF

FOR SALE

FRANK H. DAVIS CO.,
ESTABLISHED 1889
USED AND REBUILT PAPER MACHINERY.

FOR SALE

1—110" four drum Moore & White winder with slitter part, 15" diameter drums, winds 60" diameter roll, excellent condition.
6—12 plate Packer Screens.
2—Forced draft Buffalo fans, size 6½.
2—2800 lb. iron tub broke beaters.

PULPERS

1—E. D. Jones Pulper, No. 21, direct connected through Falk reducer to 50 HP induction motor, type K., G.E. magnetic reversing switch and push button station.

1—Jones Pulper, No. 33, one speed reducer, 40 HP induction motor, reversing switch and push button station.
Both pulpers new in 1938.

SHREDDERS

3—Mitts Merrill No. 15 CF right hand pulp shredders, 36" dia. cylinders, removable shell type bearings, coupled motor drive. One is equipped with 125 HP variable speed motor and controls; one is equipped with motor without the control and one shredder is without motor or control.

KNIFE GRINDER

1—90" Covel and Hanchett knife grinder, size 90 D, purchased new in 1938.

LIFT TRUCK

1—Lewis Shepard Lift Truck, type NHF, model ST, capacity 3500 lbs. Lift 5", Platform 48" x 42". Low 5", high 5". New 1937.

CONVEYOR

1—Alvey Horizontal Carton Conveyor, 98 ft. centers, two strand 3 pitch roller chain, 2½ x 2¼ x 20 maple flights, 3" on centers.

Builders of
ASPHALT COATING, COMBINING MACHINE, GUMMING AND CREPING MACHINE, ROLL GRINDER
FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge, Mass.

PAPER MILL EQUIPMENT
For Sale

52" Hamblet Sheeter.
110" Hamblet heavy duty mill type Sheeter.
36" Langston Slitter.
63" Oswego hand-clamp Power Cutter.
38" & 54" Automatic Power Cutters.
3—14 x 22 John Thomsons.
36" Waldron Reel.
American heavy duty Cross-Cut Saw.
NEW BALING PRESSES, hand & power.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18

FOR SALE

8—New Shartle iron tub beaters with rolls 80" dia., 55" face, anti-friction bearings, stainless steel hoods, ideal for broke beaters, batch breakers or washers, capacity about 4000#.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

FOR SALE—Large Tissue Paper Mill in the East with complete converting plant. Address Box 46-500 care Paper Trade Journal. J-25

FOR SALE

REVAMPING AND REBUILDING MILL AND CAN OFFER FOR SALE

1—Noble & Wood Mammoth Jr. Jordan ¼" Filling. Now operating.
1—4000# Capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.
1—6" Lawrence Centrifugal Water pump.
1—Buffalo Centrifugal Stock Pump—3".
2—6" Barnes Centrifugal Sewage Pumps.
8—100" Screen plates for No. 2-A Bird Screen. Slots .022—never used after being recut once.
1—Rubber covered press roll 12" diameter by 68" face—Journals 5" diameter by 7¼" long.
1—Rubber covered press roll 12" diameter by 84¼" face—Journals 5" diameter by 7¼" long.
1—20" face cast iron tapered pulley—2-15/16" Bore, Taper 31"—29½".
2—20" face cast iron tapered pulley—3-7/16 Bore, Taper 31"—30".
1—24" face cast iron tapered pulley—3-7/16" Bore, Taper 31⅝"—29⅝".
2—Steel split pulleys 60" diameter by 31" face —5-15/16" bore.
1—Cast iron split pulley—60" diameter by 21" face by 3½ bore.
1—Cast iron split pulley—40½" diameter by 21" face by 3½ bore.
1—Cast iron split pulley—84" diameter by 36" face by 3-15/16" bore.
1—Solid cast iron split pulley—72" diameter by 16" face by 6⅝" bore.
2—Steel split pulleys—60" diameter by 31" face by 5-15/16" bore.
1—Paper pulley—24" diameter by 21" face by 4½" bore.
1—Tapered cast iron split pulley. Taper 30" to 28½" by 20" face by 3-15/16" bore.
1—30" x 90" Cylinder Mould—7" diameter shaft inside cylinder.
1—9½" Diameter x 85" Face Rubber—covered squeeze or wringer roll—Journals 1-15/16" diameter.
1—8" Diameter x 88" Face Calender roll—5" diameter journals.
12—6½" Dia. x 92" face steel dryer felt rolls with 1-7/16" x 6½" Journals.
2—4" Gould centrifugal stock pumps with 2 vane open impeller. Capacity 600 G.P.M. at 40' head—1175 R.P.M. with 10 H.P. Operated less than two years.
2—Pair Noble & Wood lighter stands complete with lighter beams and bearings for 8" diameter journal beater roll.

A visit to the mill would prove profitable as we have many items for sale too numerous to mention. See our superintendent, Mr. O. P. Fussell at our plant in Walloomsac, New York.

WALLOOMSAC PAPER MILLS, INC.
MILLS: Walloomsac, New York
MAIN OFFICE: 25 Vanderbilt Avenue
New York 17, N. Y. TF

FOR SALE

New brass covered felt or wire rolls 6⅝" dia., 84 to 120" face. These are made from government surplus and are new in all respects.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

FOR SALE

1—156" Hamblet cutter, duplex, extra heavy, with layboy

Box No. 46-446 care Paper Trade Journal. J-25

FOR SALE

1—12" Weiner Refiner Complete with New Spare Plug Shaft Assembly.
1—Spare shell liner.
3—Sets spacer rings.
1—Extra Thrust Bearing.
1—Extra Main Bearing.

Address Box 46-476
care Paper Trade Journal. J-25

FOR SALE—Norwood Super Calender 56" width Nine rolls steel and cotton. This calender has new bearings and bearing oiling system and is equipped with Foxboro pneumatic loading. Condition excellent. Address Box 46-480 care Paper Trade Journal. A-1

FOR SALE | FOR SALE | FOR SALE

TARENTUM PRODUCTS CORP.

TARENTUM, PENNSYLVANIA

1—Majestic Jordan #A-235, complete with new filling, 3/16" tackle, No. 6 Fast Jordan Coupling, and following drive:
1 Westinghouse Induction Motor type CS 375 HP 2300 V 3 ph 60 cy 87 amp. 380 RPM Ser. #1463196, complete with one control panel, including one Westinghouse 300 amp. Oil Circuit Panel.
1 set Disconnect Switches.

1—Westinghouse DC Motor 75 HP 230 V 265 Amp 575 RPM Frame 183 Serial #4778560. Complete with starting control, circuit breaker and meter.

1—Elliott Water Pump, capacity 500 gallons per minute. Serial #37075. Direct connected to one G.E. Motor 25 HP DC Type CD 85-230 91.3 amps 1750 RPM Ser. #1530365. Complete with one starting control and switch.

1—Westinghouse Generator 70 KW 250 V DC 280 amp. 375 RPM Ser. #345451, with one Field Rheostat, one two-pole circuit breaker 600 amp., one Westinghouse 500 amp. ameter and shunt. This Generator driven by Buckeye Steam Engine, 100 lbs. steam pressure engine #5156.

1—2000 KW A.C. Turbine Generator complete with all accessories.

1—Allis-Chalmers Induction Motor 250 HP 870 RPM 2200 V 3 ph 60 cy 59 amp Serial #2K13566.1.

1—G.E. Induction Motor type KT 326-6-25-1200 Form B 3 ph 60 cy 220 V 25 HP 61 amp. 1200 RPM Ser. #1053934 complete with one G.E. Oil Switch Type F Form K20 60 amp. 600 V Ser. #368400.

1—G.E. Starting Compensater CR 1034 220 V 3 ph 60 cy Type NR 1622.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 V 3 ph 60 cy 38 amp. Ser. #1160132.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 V 3 ph 60 cy 38 amp.

1—Westinghouse 30 HP D.C. Motor 220 V 117 amp. 975 RPM Ser. #233501.

1—G.E. Motor DC Type MP Form H 20 HP 1025 RPM 220 V 70 amp. Ser. #19880, complete with manual starting equipment.

1—104" Sheet Cutter complete with stands for 10 rolls and layboy.

1—G.E. Motor DC Type RC30 Form A 15 HP 850 RPM 230 V 53.5 amp. Ser. #957750, complete with variable speed control for armature and field.

1—G.E. Motor DC 7.5 HP 230 V 38.2 amp. 850 RPM Type RC-29A Form A29 Ser. #1145841.

1—G.E. Motor DC 10 HP 230 V 375.1 amp. 850 RPM Type RC 29 Form A29 Ser. #1148566.

1—Westinghouse DC Motor type S 5 HP 220 V 21 amp. 1300 RPM Ser. #112692.

1—G.E. Motor DC 35 HP 129 amp 230 V 700 RPM DLC 202 Form A Compound Ser. #434542, complete with starting control.

1—G.E. Induction Motor (slipring) Type IE 13AA-4-150-1800 Form M 3 ph 60 cy 2200 V 150 HP 34.5 amp 1745 RPM Ser. #3884576 complete with panel. One G.E. Switch Panel Type ATI 80068, one Drum Controller and Resistance, variable speed.

1—Allis-Chalmers DC Motor 10 HP 220 V 500 RPM #38637.

1—Commercial DC Motor 10 HP 230 V 40 amp 730 RPM Ser. #3609, complete with variable control.

1—Master Electric Worthington Pump and Motor. Pump is good for 100 gal. per minute 5 HP motor 230 V DC 3425 RPM Ser. #CC-3495.

1—Robbins & Myers Hoist ½ HP 230 V DC 400 RPM Ser. #M71309KH.

1—Master Electric Gear Head Motor 1 HP 230 V DC 1725 RPM Ser. #CE863.

1—Shepard Liftabout Electric Hoist 2,000 lb. capacity 230 V DC Ser. #11339.

1—Wright Electric Hoist 1,000 lb. capacity 230 V DC 1200 RPM Ser. #27668.

3—ILG Ventilating Fans ¼ HP 230 V DC 855 RPM.

2—G.E. CP 27 Compressor Head Air Pumps 230 V DC Complete with pressure line switches.

1—Allis-Chalmers DC Motor 5 HP 220 V 1050 RPM Ser. #44037.

1—Westinghouse DC Motor 10 HP 40 amp 230 V 1725 RPM Frame 60L Ser. #143833.

1—G.E. Motor DC Type C-27-B Form A112 10 HP 37.5 amp 230 V 1750 RPM Ser. #1454993, complete with control.

1—Cameron #10A Rewinder #36836, trim 44".

1—Cameron #10 Rewinder #30272, trim 64".

1—Daniels Rag Cutter #2.

1—Horizontal Rotary Digester 7' dia. 22' long, with gearing reduction.

1—Horizontal Rotary Digester 8' dia., 29' long, with gearing reduction.

1—Bucket type conveyor elevator. Buckets size 8" x 17", approximately 48' long, lifts on incline approx. 15'. All steel construction with Rex Chain Drive, complete with one Foote Bros. gear reducer type 28W, 43 to 1, Ser. #166052, driven by one G.E. DC Motor type RC27A Form A-38 5 HP 19.1 amp. 230 V 1150 RPM.

1—R40 Reducer, 12 to 1 ratio.

1—Slat Conveyor steel construction 4' wide, 3' high, 42" long, driven by one Jones Spur Gear Reducer, ratio 27 to 1, Ser. #10135. Driven by one Sprag electric DC Motor type LC 10 HP 37.2 amps 230 V 100 RPM Ser. #DL 2005213, complete with sheaves and V-Belt drive, one Westinghouse Automatic Starter.

1—John Waldron Corrugator #711.

1—Thorpe Hydraulic Press complete with 4 steam platen plates 40" x 40", and one Equalizer Pump.

1—Four cylinder Holyoke Duster.

1—Two-color rotary printing press, with various plates and printing rolls. Will handle 30" wide rolls of paper.

1—Heavy Duty Smith & Winchester Tuber #3389, with tuber attachments No. 4052 and No. 4053.

1—Frank A. Jones Tuber No. 1809.

1—Smith & Winchester Bottomer No. 1810, size 1/16 bbl.

1—Smith & Winchester Bottomer No. 3325, size ¼ bbl.

1—Smith & Winchester Bottomer No. 4018, size ½ bbl.

1—Smith & Winchester Valver No. 2245, size ¼ bbl.

1—Printing Press, Cottrell Flat Bed No. 9645, one color.

1—Printing Press, Cottrell Flat Bed No. 9640, one color.

1—Printing Press, Cottrell Rotary, two color.

J-25

1—36" Robinson Card Cutter, with 11 sets of Knives and ¼ h.p. A.C. Motor Equipment.

1—64" Creping Machine. Creping roll 12" in diameter with doctor blade. Two dryers 36"x64" and rewind.

1—Noble & Wood Pony Jordan with extra plug, ⅜" steel fillings.

6—Potdevin Bag Machines, making flat and square bags from ¼ to 25 lbs.

1—110" Double-drum Waldron late type shear cut Hydraulic Slitter and Rewinder.

1—44" wide 7 roll stack of Holyoke Super calenders, 4 chilled iron and 3 cotton rolls, offered rebuilt and guaranteed.

1—Noble & Wood 100 lb. Experimental Beater.

4—Complete spiral tube winders with automatic cut-offs, also recutter. 2 Langston and 2 Knowlton manufacture.

1—48" Waldron Cellophane Slitter and Rewinder.

1—High Speed, 3000 per hour production, garment bag making machine with 2 color printing attachment and AC motor equipment. Range smallest bag 17¾" wide x 30" long; largest bag 23¾" x 65" long.

GIBBS-BROWER COMPANY, INC.
21 East 40th St., New York 16, N. Y.
TF

FOR SALE

New and guaranteed used steel pipe and boiler tubing suitable for paper cores and all other purposes. Also, valves, fittings, wood and steel tanks and steel buildings.

JOS. GREENSPON'S SON PIPE CORP.
NAT'L. STOCK YARDS,
ST. CLAIR CO., ILL.
JL-25

FOR SALE

Barrett - Craven and Lewis - Shephard Lift Trucks, in excellent condition, 3,500# and 5,000# capacities, 7" high in lowered position, 3" and 4" lifts.

EMPIRE BOX CORPORATION
Garfield, New Jersey
TF

FOR SALE

4—2A Bird screens.
2—12 plate flat screens.
4—10 plate flat screens.
1—#4 Shartle refiner.

FRANK P. LYDEN—FORT EDWARD, N. Y.
A-15

FOR SALE—50" Sheridan New Model Cutter in good working order. Address Box 46-492 care Paper Trade Journal. J-25

FOR SALE

2 Each, HUDSON SHARPE 72" Wide Toilet Tissue machines and Winding machines

Address Box No. 46-454 care Paper Trade Journal. TF

For Sale—One 100 Horse Power Motor, Westinghouse Type F, 60 Cycle, 3 Phase, 220 Volts, 580 RPM. Complete with Compressed Paper Pulley.
Also One Fire Tube Boiler 150 Horse Power Strap Hung in First Class Condition.

WINDSOR LOCKS PAPER CORP.
Windsor Locks, Conn.
J-25

FOR SALE—Paper Tube Machinery—four semi-automatic convolute paper tube winding machines equipped with motors and mandrels. Two 48" Paper Sheet pasting machines with motors. Write American Paper Products Co., 2113-37 East Rush Street, Philadelphia 34, Pa. A-1

PAPER COATING MACHINERY — Waxing, Oiling, Gumming, Gluing, Carbon, Laboratory Coating and Treating Machines. High speed. New improvement. MAYER MACHINE COMPANY, Inc., 1155 Scottsville Road, Rochester, 11, N. Y. TF

FOR SALE

FOR SALE

FOR SALE

Surplus 200,000# Microcrystalline Wax—150/160 M.P.—penetration 25/35. Address Box 46-496 care Paper Trade Journal.

J-25

FOR SALE

BREAKER BEATER

Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.
1—Breaker Beater Perforated Face Roll—42" face roll—no tub.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark 5, N. J.
Tel. Bigelow 3-3720 **J-25**

FOR SALE—Moore & White Style K.T. Duplex Cutter with one Revolving Duplex Slitter having 94" length of knives and three each top and bottom Slitters on each of two slitter shafts and with a two reel unwinding backstand. Ready for immediate shipment. Theo. Adams, 111 West Washington St., Chicago, 2, Ill. A-29

FOR SALE—One complete up-to-date 72" trim Fourdrinier Paper Machine. Perfect condition. For further particulars address Box 46-482 care Paper Trade Journal. J-25

FOR SALE—80" Shartle and Bevis Superior Waxing Machine complete with drive (except motor) unwind roll stand, shafts, chucks and rewind shaft. Complete and in good condition. Shipping weight 20,000 pounds. Address Box 46-498 care Paper Trade Jounnal. A-8

WANTED

WANTED

WANTED TO BUY—Two 66" or 72" toilet roll winding machines. Drum and head suitable for perforating 5" long sheets. Address Box 46-471 care Paper Trade Journal. A-1

WANTED—Two 75 H. P. Syncronous or wound rotor motors 600 R.P.M. 550/3/60 for beater drives. Address Box 46-470 care Paper Trade Journal. J-25

WANTED—Old Evaporator Tubes 1", 1¼" and 2" O. D. Why sell them for junk? Write us if you have any. Also when you get ready to change over. S. Bender, P. O. Box 271, Shreveport, La. A-8

WANTED — W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 46-32 care Paper Trade Journal. TF

WANTED—Twelve or more dryers, size to be 96" face. 104" shoulder to shoulder of journal. 42" dia. Address Weaver-Wall Company, Avery, Ohio. J-25

WANTED—Brightwood Box Machine. Address Box 46-33 care Paper Trade Journal. TF

WANTED:

Rotary Sheet Cutter. Minimum width 48". One roll stand. Good condition. Reply should include full description and price. Address or phone J. E. Gallagher.

THE COLUMBIA MILLS, INC.

225 Fifth Avenue **New York City 10, N. Y.**

WANTED—5—42" diameter x 86" face C. I. Dryers. Address Box 46-491 care Paper Trade Journal. A-15

WANTED—Used 84" mill type straight knife. Must be in good condition. Reply giving age serial number and price. Address Box 46-495 care Paper Trade Journal. J-25

WANTED—Straight pass enclosed drier to handle paper coating process. Also paper coating equipment. The Process Manufacturing Company, 1313 West Randolph Street, Chicago, 7, Illinois. TF

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS: GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

WANTED—Four room apartment—Cleveland or vicinity. Address Box 46-298 care Paper Trade Journal. TF

BUSINESS OPPORTUNITY

BUSINESS OPPORTUNITY

CONNECTION DESIRED with manufacturers of machinery for coated paper production. We also wish to contact producers of lacquers and colours for same purpose.

RASCH & CO. A/S
Karl Johansgt. 1, Oslo, Norway

J-25

WANTED BOARD MACHINES

From 60 to 80" wide to produce paper boards, such as Chip, News, Kraft, etc. from paper waste or pulp in .016 caliper and up. Will consider moving plant or operating where ours is. Will buy outright or trade with our paper box machinery for corrugated, solid fibre, setup and folding boxes. Address Box 46-497, c/o Paper Trade Journal. A-29

The right man may be seeking a job in an advertisement in this section. The machine or the material you urgently need may be advertised right here in these columns. Read Them, Use Them—If you need something, advertise for it—If you have something to sell tell the industry about it—Everybody reads the Clearing House.

SALES AGENCY

Paper Manufacturers Agents, covering all of Egypt, with an experience of 20 years in the paper trade, desire to contact American manufacturers of papers and boards, interested to appoint agents in Egypt. Write: Paper Agents, P. O. B. 1297 Cairo (Egypt). **A-1**

Stickle

STEAM SPECIALTIES COMPANY

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LONG LIFE FELTS

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SKANEATELES FALLS, N. Y.

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AMORPHOUS WAXES
Melting Points 120° F. to 205° F.
For the Manufacture of
LAMINATING PAPER . . GLASSINES . . WATER-PROOFING . . GREASE PROOFING . . EXTENDERS FOR PARAFFIN, FOOD CONTAINERS, CONTAINER LININGS, ADHESIVENESS AND PROTECTIVE COATING.

"GIANT" RAG CUTTERS
for both Large and Small PAPER MILLS.
Capacities from one to five tons an hour.
10 Bridge Street, Riegelsville, N. J.
TAYLOR-STILES and Company
CUTTING MACHINES & KNIVES

AMYLIQ
the modern means for preparing coatings and tub-sizings from starch.
WALLERSTEIN COMPANY, INC.
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WORM GEARS
CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS
PROPELLER PUMPS
CLOGLESS PUMPS
MIXED-FLOW PUMPS
DE LAVAL-IMO OIL PUMPS
DE LAVAL STEAM TURBINE CO.
TRENTON 2, NEW JERSEY

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PAPER TRADE JOURNAL

will be

OCTOBER 10, 1946

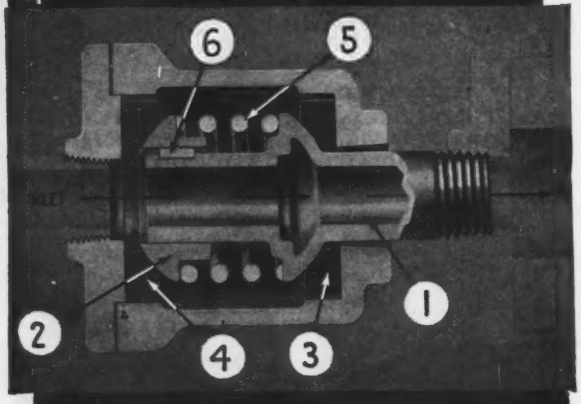
MILL & MILL EQUIPMENT NUMBER

will be

DECEMBER 5, 1946

4 Good Reasons Why JOHNSON ROTARY JOINTS

Speed Up Production and Cut Down Maintenance



1 **COMPLETELY PACKLESS.** Rotating member consists of nipple (1) and sliding collar (2), keyed together (6). Seal is accomplished by carbon graphite seal ring (3), forced by pressure tightly against nipple. Positive seal—no stuffing boxes or steam fits to repack. Carbon graphite ring (4) serves as bearing.

2 **SELF-OILING.** Seal ring (3) and bearing ring (4) are of long-lived carbon graphite—require no lubrication. Your maintenance man will go for this in a big way.

3 **SELF-ADJUSTING.** Spring (5) is for initial seating only. Joint in operation is pressure sealed; the higher the pressure, the tighter the seal, as it should be. No lost time due to repacking or repairing because of misalignment.

4 **SELF-ALIGNING.** Ball and socket joints between rotating member and rings compensates for angular misalignment of pipe. Space between nipple and housing provides for lateral misalignment.

● Yes, Johnson Rotary Pressure Joints end all the troubles of the old style stuffing boxes and steam fits. In addition, they provide a simple way to install more efficient methods of syphon drainage. And—very important—is the fact that Johnson Joints can pay their own way out of savings in maintenance alone.

WRITE FOR COMPLETE INFORMATION

The Johnson Corporation

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Make Your Compressed Air Come Clean with the Johnson Separator. Employs the two best principles of separation—expansion and change of direction; removes 99% plus of trouble-causing water, dirt and oil from compressed air. Simple design and construction insures long life. Also available for service on steam lines.

Write for Bulletin on Johnson Separation Devices

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Monsanto Chemical Co.
Norton Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division

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American Resinous Chemicals Corp.
Arabol Mfg. Co.
Flintkote Company
Monsanto Chemical Co.
National Adhesives Division of National Starch Products, Inc.
Philadelphia Quartz Co.
Stein, Hall & Co., Inc.
United States Rubber Co.

AGITATORS
Appleton Machine Co.
Biggs Boiler Works Co.
Dilts Machine Works, Inc.
Dorr Company
Downingtown Mfg. Co.
Hardinge Co., Inc.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
D. J. Murray Mfg. Co.
Montague Machine Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

AIR CONDITIONING
Steamaire Company

ATOMIZERS
Steamaire Company

BAG MACHINES
Thomas W. Hall Co., Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Weber, Herman G.

BALING MACHINES
Thomas W. Hall Co.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
Fibre Making Processes, Inc.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works, Inc.
E. D. Jones & Sons Co.
The Moore & White Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BEARINGS
Black-Clawson Company
Jones, E. D., & Sons Co.
Magnus Metal Corp.
Montague Machine Works
Raybestos-Manhattan Inc. Manhattan Rubber Division
Rollway Bearing Co.
Shartle Brothers Machine Co.
SKF Industries, Inc.
Timken Roller Bearing Co.
Valley Iron Works Co.
T. B. Woods' Sons Company

BEATERS & JORDANS
The Appleton Machine Co.
Black-Clawson Company
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Hermann Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
J. J. Ross Company
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Alexander Brothers
Allis-Chalmers Mfg. Co.
The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc. Manhattan Rubber Division
J. E. Rhoads & Sons
United States Rubber Co.
T. B. Wood's Sons Company
Worthington Pump & Machy. Corp.

BLEACHING BOILERS, ROTARY
The Biggs Boiler Wks. Co.

BLEACHING APPARATUS
The Biggs Boiler Works Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
Noble & Wood Machine Co.
Pennsylvania Salt Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.

BLOW PIPES & PITS
Carthage Machine Co.
Montague Machine Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.

BOILERS (Electric)
Steamaire Company

BOTTOMS
Harrington & King Perforating Co.
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

CALENDERS
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell Car Wheel Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works
Waldron Corp., John

CASEIN
Packing Products Co.

CASTINGS
Appleton Machine Co.
Black-Clawson Company
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Grinnell Company
Hamblet Machine Co.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lobdell Car Wheel Co.
Magnus Metal Corp.
Montague Machine Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Union Machine Company
Union Screen Plate Co.
Valley Iron Works Co.

WHERE TO BUY

Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.
De Laval Steam Turbine Co.
Nichols Engrg. & Research Corp.
Ross, J. O., Eng. Co.
Shartle Brothers Machine Co.

CHEMICALS
American Anode, Incorporated
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Ansul Chemical Co.
Calco Chemical Co.
The Cowles Detergent Co.
Diamond Alkali Co.
Dispersion Process, Inc.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
Falls Chemical Products Co.
General Dyestuff Corp.
Geigy Co., Inc.
Gottesman & Co.
Hooker Electrochemical Company
Mallinckrodt Chemical Wks.
The Mathieson Alkali Works, Inc.
Monsanto Chemical Company
National Oil Products Co.
Naugatuck Chemical Div. of U. S. Rubber Co.
Niagara Alkali Company
Paper Makers Chemical Department, Hercules Powder Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Stauffer Chemical Company
United States Rubber Co.
Witco Chemical Co.
Wyandotte Chemicals Corp.

CLEANING MATERIALS
Amer. Cyanamid & Chem. Corp.
Bird Machine Co.
The Cowles Detergent Co.
E. I. du Pont de Nemours & Co., Inc.
Paper Makers Chemical Department, Hercules Powder Co.
Magnus Chemical Co.
Monsanto Chemical Co.
Nichols Engrg. & Research Corp.
Oakite Products, Inc.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Solvay Sales Corp.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
Black-Clawson Company
Hudson Sharp Machine Company
Farrel-Birmingham Co.
Fawick Airflex Co., Inc.
Hardinge Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Stearns Magnetic Mfg. Co.
T. B. Wood's Sons Company

COATING MACHINERY
Hudson Sharp Machine Company
Mayer Machine Co.
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corporation, John
Weber, Herman G.

COCKS, LUBRICATED PLUGS
American Car & Foundry Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
Ingersoll-Rand Co.
Nash Engineering Co.
Worthington Pump & Machy. Corp.

CONSULTING ENGINEERS
Frederic C. Clark
Ferguson, Hardy S.
Hardy, George F.
Alvin H. Johnson & Co., Inc.
The Kohler System Company
Main, Inc., Chas. T.
The McPherson Company
Roderick O'Donaghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
South Wabash Engrg. Co.
Stone & Webster Engrg. Corp.

CONTROLLERS
Black-Clawson Co.
Cochrane Corp.

CONTROLS
The Bristol Company
Cochrane Corp.
Stickle Steam Specialties Co.

CONVEYORS
Black-Clawson Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.

COOLING SYSTEMS
Steamaire Company

CORES
Elixman Paper Co.
Rodney Hunt Machine Co.
Montague Machine Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.
Walker-Goulard-Plehn Co.

COUPLINGS
Black-Clawson Company
De Laval Steam Turbine Co.
Farrel-Birmingham Co., Inc.
Hardinge Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Corporation
T. B. Wood's Sons Company

CRANES
Northwest Engrg. Co.
Reading Chain & Block Company

CRUSHERS
Fibre Making Processes, Inc.

CUTTERS
Dilts Machine Works
Thomas W. Hall Co.
Noble & Wood Machine Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Steamaire Company
Valley Iron Works Co.

DE-INKING
Dilts Machine Works
Hardinge Co., Inc.
Kinsley Chemical Co.
Shartle Bros. Mach. Co.

DIGESTERS
Biggs Boiler Works Co.
Pusey & Jones Corp.

DOCTORS
Bird Machine Company

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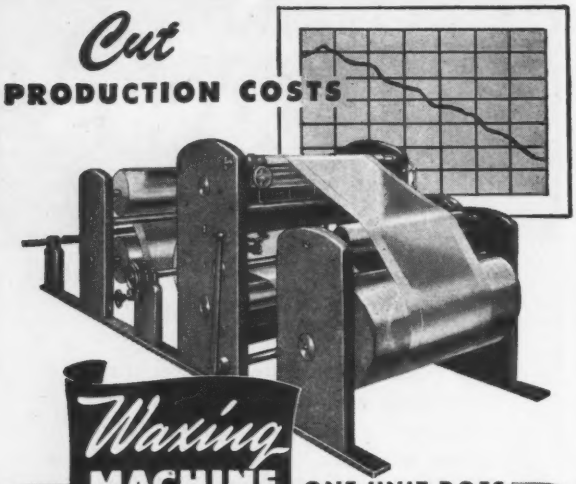

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Lodding Engineering Corp.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.

DOCTOR BLADES

Black-Clawson Company
Lodding Engrg. Corp.
Montague Machine Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

DRIERS

Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross, J. O., Engineering Corp.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIVES

Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

DRUMS

Fibre Making Processes, Inc.

DUSTERS

Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS

Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

EMBOSSING ROLLS

Northern Engraving & Mch. Co.
Roehlen Engraving Co.

EVAPORATORS

Black-Clawson Company
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FANS

General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS

Fibre Making Processes, Inc.
Hardinge Co., Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup
Wallace & Tiernan

FELTS

Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.

FELT CONDITIONERS

Steamaire Company

FELT GUIDES

Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS

Aluminum Flake Co.
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS

Cochrane Corp.
Hardinge Co., Inc.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Worthington Pump & Machy. Corp.

FLOORING, GRATING & TREADS

Hendrick Mfg. Co.
Klemp Co., W. F.
Norton Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

FORMING MACHINES

Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

FRICTION MATERIALS

Johns-Manville Sales Corp.

FREENESS TESTERS

Testing Machines, Inc.

GEARS

Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS

Carthage Machine Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

GRINDING WHEELS

The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
Norton Company
United States Rubber Co.

HEATING, VENTILATING AND AIR CONDITIONING

The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Worthington Pump & Machy. Corp.

HOISTS

Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.
Reading Chain & Block Corp.

HOSE (Air, Water, Suction, etc.)

The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

WHERE TO BUY

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Steamaire Company

INSTRUMENTS, TESTING AND MEASURING
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. B. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.

INSULATION
Johns-Manville Sales Corp.

JOINTS
Perfecting Service Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Valley Iron Works Co.

KNOTTERS
Fibre Making Processes, Inc.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LINTER COTTON
The Railway Supply & Mfg. Co.

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

LUBRICATORS
Hills-McCanna Co.

MATERIAL HANDLING
Northwest Engrg. Co.
Reading Chain & Block Company

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

MOISTENING EQUIPMENT
The Spray Engineering Co.
Steamaire Company

MOISTURE CONTENT CONTROL
Steamaire Company

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
Continental Electric Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation

NOZZLES
Steamaire Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAPER MACHINES
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks
Valley Iron Works Co.

PAPER MILL BUILDERS
Merritt-Chapman & Scott Corp.
The Rust Engrg. Co.

PAPER TUBE MACHINERY
Theo. Adams
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John

PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

PIPE
Black-Clawson Company
Crane Company
Deublin Company
Grinnell Company
Johns-Manville Sales Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
Taylor Forge & Pipe Works
Walworth Company

PLATERS
Perkins & Son, Inc., B. F.

PLATES
Black-Clawson Company
Hendrick Mfg. Co.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

PRESSURE VESSELS, STEEL AND ALLOY
The Biggs Boiler Works Co.

PRESSES
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
Weber, Herman G.

PULPERS
Bauer Brothers Co.

PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co. (America) Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

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Allis-Chalmers Mfg. Co.
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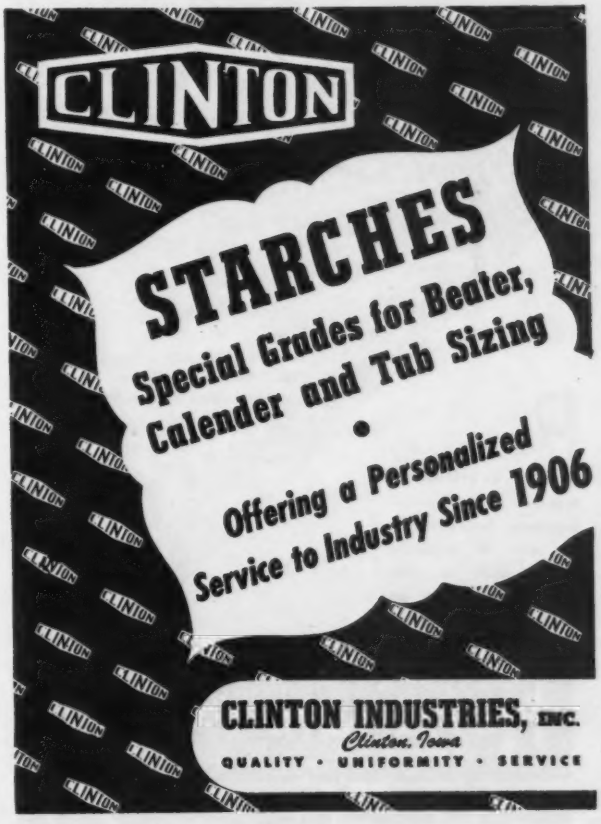
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Hardinge Co., Inc.
Hills-McCanna Co.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Morris Machine Works
Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Steamaire Company
Warren Steam Pump Company
Worthington Pump & Mchy. Corp.

RAG CUTTERS
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Mañufacturing Co.
E. D. Jones & Sons Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
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Shartle Brothers Machine Co.
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Valley Iron Works Co.
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Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

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Biggs Boiler Works

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Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

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Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.
Union Machine Co.
Union Screen Plate Co.

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Shartle Brothers Machine Co.
Valley Iron Works Co.

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National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Socony-Vacuum Co.
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Mallinckrodt Chemical Wks.

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Carthage Machine Co.
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Hudson Sharp Machine Company
Langston Co., Samuel M.
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Potdevin Machine Co.
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Witco Chemical Company
SULPHUR BURNERS
Valley Iron Works Co.
SULPHUR DIOXIDE
Ansul Chemical Company
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Hardinge Co., Inc.
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Black-Clawson Company
Bulkley, Dunton Pulp Co., Inc.
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Hayden Wire Works
International Wire Works
Lindsay Wire Weaving Co.
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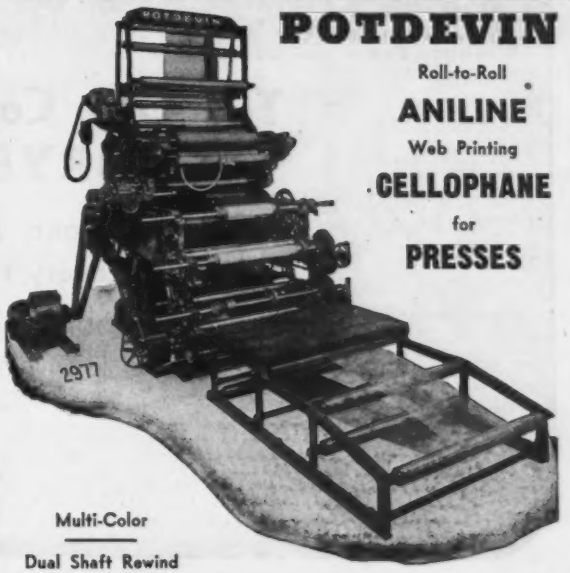

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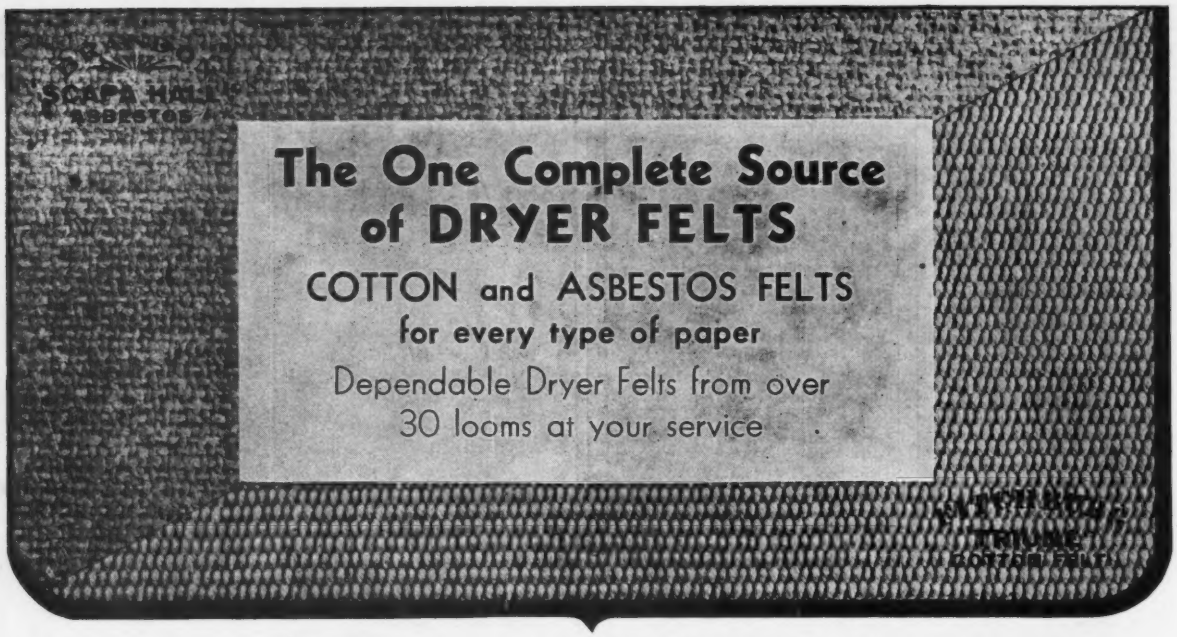
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ALPHABETICAL INDEX TO ADVERTISERS IN THIS ISSUE

A

Allis-Chalmers Mfg. Co. 3
Ames Company, B. C. 5
Appleton Wire Works, Inc. .. 56
Appleton Woolen Mills 56
Armstrong Mach. Works 31

B

Binney & Smith Co., Magnetic Pigment Div. 67
Black-Clawson Co. 59
Broughton & Co., A. E. 18
Buffalo Pumps, Inc. 23

C

Cameron Machine Co. 68
Chemipulp Process, Inc. 56
Cheney Bigelow Wire Works .. 30
Cincinnati Rubber Mfg. Co. ... 51
Classified Advertising 58
Clinton Industries, Inc. 69
Combustion Engrg. Co. .....28 & 29

D

Davis, Frank H., Co. 62
DeLaval Steam Turbine Co. .. 65
Diamond Alkali Co. 7
Dilts Machine Co. 59
Dow Chemical Co. 34
Downingtown Mfg. Co. 2

E

Elias & Co., Inc. 56
English China Clays Sales Corp. 57

F

Ferguson, Hardy S. 56

G

General Electric Co. 12
Gibbs-Brower Co., Inc. 63
Goslin Birmingham Mfg. Co. .. 17

H

Hall, Thomas W., Company .. 62
Hansson Inc., Elof 16
Hardy, George S. 56
Harrington & King Perf. Co. .. 70
Hercules Powder Co. .....24 & 25
Hudson Sharp Mch. Co. 68
Huyck & Sons, F. C. 73

J

Johnson Corporation 66
Jones & Sons Co., E. D. 56

K

Kinsley Chemical Company 56

L

Langtson Co., Samuel M. 27
Lyddon & Company 33

M

Magnetic Pigment Div., Binney & Smith Co. 67
Magnus Chemical Co. 55
Main, Inc., Chas. T. 56
Mayer Machine Co. 56
Mead Corporation 55
Merritt-Chapman Scott Corp. .. 56
Michigan Steel Casting Co. 56
Moore & White Company 56
Morey Paper Mill Supply Co. .. 72
Mt. Vernon Woodberry Mills, Inc. 15

N

Niagara Alkali Co. 19

O

O'Donoghue, Roderick 56
Oliver United Filters, Inc. 13

P

Parsons & Whittemore 33
Pennotex Oil Corp. 65
Perkins-Goodwin Co. 49
Pittsburgh Plate Glass Co. 11
Potdevin Machine Co. 71
Powell Company, Wm. 6
Price & Pierce, Ltd. 71

R

Raymond Service, Chas. P. 58
Record Fdy. & Mch. Co. 57
Ross, J. J., Company 60
Ross Paper Machinery Co. 61
Rotogravure Engrg. Co. 56

S

Shartle Bros. Machine Co. 59
Smith & Winchester Mfg. Co. .. 69
Smith Co., S. Morgan 30
Socony Vacuum Oil Co. Back Cover
Stickle Steam Specialties Co. .. 64
Sun Oil Company 8

T

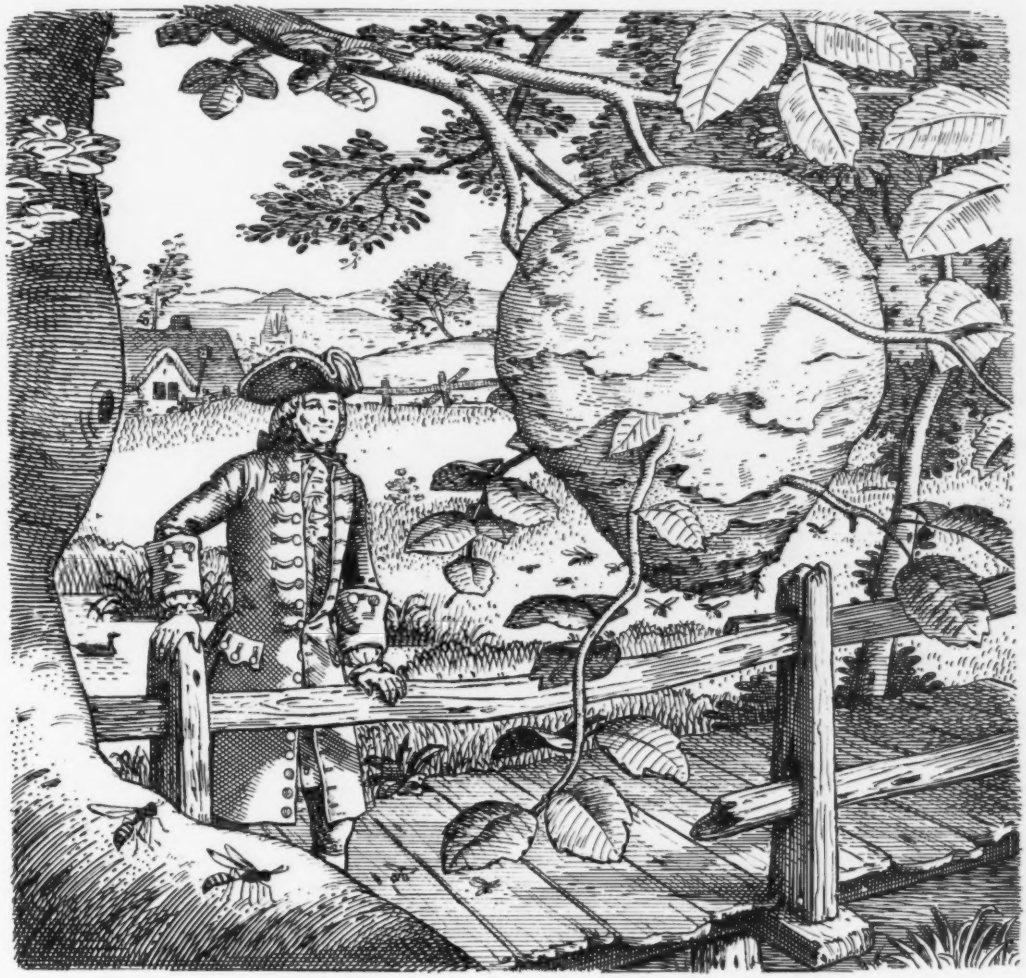
Taylor Stiles & Co. 65
Testing Machines, Inc. 57
Texas Company 4
Tidewater Asoc. Oil Co. 56

U

Union Machine Co. 57

W

Wallerstein Co., Inc. 65
Warren Steam Pump Co. 52
Waterbury Felt Company 65
West Va. Pulp & Paper Co. .. 70
Whiting Corporation ....Front Cover
Wyandotte Chemicals Corp. ... 26



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One day in 1719, a French scientist, René de Réaumur, while out for a walk, paused to watch some wasps building their nest. He noted that they chewed up bits of wood, then pressed the pulpy mass into layers that looked amazingly like paper! Pondering this discovery, he informed the French Royal Academy: "The wasp seems to invite us to try whether we cannot make fine and good paper from the use of certain woods."

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